5HR-13

MAY 2 2 1989

Richard Clute
Environmental Affairs Coordinator
WCI Freezer Division
701 33rd Avenue North
St. Cloud, Minnesota 56303

Re: WCI Freezer Division
MND 092 304 856

Dear Mr. Clute:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the "Proposed Sampling Work Plan", dated May 3, 1989, and concurs (conditionally) with your scheme for sampling. The following items are important from this Agency's perspective in order to ensure that quality results are achievable toward our mutual effort of environmentally assessing the condition of soil and groundwater at your facility.

1. Further clarification and specification is needed concerning certain details of the proposed plan. First, it is not clear whether PACE Laboratories will filter water samples in the field such that resulting analyses will characterize the dissolved metals content of groundwater. While U.S. EPA and the Minnesota Pollution Control Agency (MPCA) can prepare for conducting this step in the event that PACE doesn't, comparison of data would be most meaningful if split samples are derived through a consistent collection history and are subjected to a single filtration step conducted in the field before preservation.

   Secondly, there were no plans offered regarding decontamination of the sampling bailer. U.S. EPA has its own guidelines and policies for decontamination and use of bailers which should be adhered to. PACE Laboratories and the U.S. EPA should agree on all aspects pertaining to bailer utilization before well sampling is initiated.

2. The U.S. EPA intends to acquire additional soil samples, representative of further depth increments beyond those proposed by PACE and WCI, during the sampling visit. We do not plan to drill additional boreholes beyond the number proposed by WCI. However, the total inventory of samples intended for collection by U.S. EPA would be somewhat greater. In the empty container storage area, U.S. EPA will analyze five VOA samples from each of two boreholes. In the Closed Holding Pond, U.S. EPA will analyze five VOA samples and five samples for routine

analytical services (RAS) metals from each of two boreholes. In the hole designated as background, five sampling intervals will be analyzed for both VOA and RAS metals

Included in the above, U.S. EPA will obtain a split of every sample taken by WCI. The procedure for taking additional samples will be consistent with procedures used by WCI, and should not inconvenience field personnel to any great degree. It should also be mentioned here that both soil borings, representative of the closed lagoon location, should be taken from the old "lagoon inlet" areas.

3. WCI's written proposal should be modified to address the following:

WCI must present to representatives of both the U.S. EPA and the MPCA viable plans for decontamination of bailers, collection buckets and sample containers. The intended sample procedures for groundwater collection should be outlined in these plans. A protocol for well purging and well development stabilization techniques should be submitted. WCI must also clarify their written discussion of how head space analyses will be conducted for the soil borings.

I trust these minor difficulties can be resolved in the relatively near future in order for our cooperative environmental investigation to proceed in timely fashion beginning the week of June 5, 1989. If you have further questions or comments please direct them to Mr. Allen A. Debus of my staff at (312) 886-6186.

Sincerely,

Charles B. Slaustas, Chief
MN/WI Section, RPB

cc: Kevin Veach, MPCA

5hr-13/DEBUS/ad/5-16-89/wrr disk/wcisampl

RCRA PERMITS	TYP.	AUTH.	IL. CHIEF	IN. CHIEF	MI. CHIEF	MN/WI CHIEF	OH. CHIEF	WPB CHIEF
5-18 INIT. DATE	Q	CBS 5/15				CBS 5/19		

pace laboratories, inc.
PROFESSIONAL ANALYTICAL CHEMISTRY & ENGINEERING

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa

1710 Douglas Drive North □ Minneapolis, MN 55422 □ Phone (612) 544-5543 □ FAX (612) 544-3974

May 17, 1989

Mr. Kevin Veach
Permit and Review Unit
Hazardous Waste Section
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Mr. Allen Debus
U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, IL 60604

Re: Proposed Sampling Work Plan; Addendum #1;
WCI Freezer Division; St. Cloud, Minnesota

Gentlemen:

I am writing to clarify various items discussed during a telephone conversation with Mr. Veach on May 16, 1989.

The items discussed were as follows:

1. You desire confirmation that a three inch split spoon will be used during the soil boring activities. A three inch split spoon will be used.

2. You desire field quality assurance information concerning PACE's standard chain of custody procedures, bottle and bailer preparation procedures and our field filtration procedures. A copy of our Groundwater Monitoring Field Quality Assurance Manual is enclosed for your records.

3. You desire documentation of our laboratory quality assurance procedures. A copy of PACE's current Quality Assurance Plan is enclosed for your records.

4. You desire a description of the steps and timing for well development activities. The wells are scheduled for installation during the first half of the week beginning June 4, 1989. Braun Engineering Testing, Inc. will develop the wells on June 9, 1989 by jetting and pumping as needed to provide nearly sediment-free water. The wells will be allowed to stabilize over the following week and we anticipate sampling the wells on June 19 or 20, 1989.

5. You desire clarification that HNU meter screening will be provided on the background soil boring. The samples will be so screened and two samples with the highest readings will be submitted to the laboratory for volatile organic compound (VOC) analyses (EPA SW 846 Method 8240). Soil from samples having lower organic screening concentrations than the two highest readings will, upon request, be properly preserved and made available to the MPCA and/or the U.S. EPA for additional VOC analyses.

Please contact me if you have any questions about the items above.

Sincerely,

Daniel A. Comeau
Environmental Scientist

DAC222/mc

Enclosures

cc: Richard B. Clute, WCI
Dale Stephenson, Esq., Squire,
Sanders & Dempsey

WCI FREEZER DIVISION

May 3, 1989

Mr. Kevin Veach
Permit and Review Unit
Hazardous Waste Section
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Mr. Allen A. Debus
U.S. Environmental Protection
Agency -- Region V
230 South Dearborn Street
Chicago, IL 60604

Gentlemen:

I am submitting WCI's Proposed Sampling Work Plan which was prepared by our consultants Pace Laboratories, Inc. I understand that Dan Comeau from Pace has communicated directly with Kevin Veach in preparing this plan. We look forward to your prompt concurrence in this proposal so that we can proceed with the work on schedule.

Please contact Dan Comeau if you have any technical questions. Otherwise, please feel free to contact either me or Dale Stephenson if you would like to discuss this further.

Sincerely,

Richard B. Clute
Environmental Affairs Coordinator

RBC/ski
Enclosure

cc: Mary L. Fulghum, Esq. (w/encl.)
James L. Calhoun (w/encl.)
Raymond G. Dauscher, Esq. (w/encl.)
Dale E. Stephenson, Esq. (wo/encl.)
Daniel A. Comeau (wo/encl.)

Squire, Sanders & Dempsey

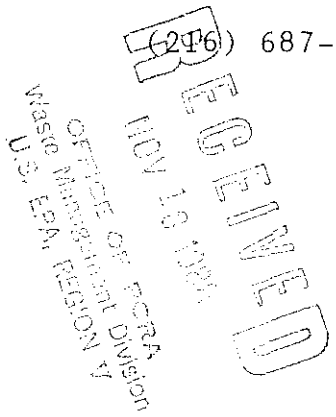
Additional Offices:
Brussels, Belgium
Columbus, Ohio
Miami, Florida
New York, New York
Phoenix, Arizona
Washington, D.C.

Counsellors at Law
1800 Huntington Building
Cleveland, Ohio 44115

Telephone (216) 687-8500
Cable "Squiresand"
Telex 985-661
Telecopier 1 (216) 687-8777
Telecopier 2 (216) 687-8780

Direct Dial Number
(216) 687-8675

November 16, 1988



CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Charles B. Slaustas
Chief, Minnesota/Wisconsin Section
U.S. EPA - Region V
230 South Dearborn Street
Chicago, Illinois 60604

Re: WCI Freezer Division (St. Cloud, Minnesota)
White Consolidated Industries, Inc.

Dear Mr. Slaustas:

I am writing on behalf of White Consolidated Industries, Inc. ("WCI") in response to requests from U.S. EPA and the Minnesota Pollution Control Agency ("MPCA") to take soil boring samples, and install and sample groundwater monitoring wells, as part of a "RCRA Facility Assessment" at the WCI Freezer Division in St. Cloud, Minnesota. We have discussed this matter with both Allen Debus of your staff and Kevin Veach at the MPCA, and indicated that while WCI questions the regulatory authority asserted by the Agencies, the company would retain an independent consultant to review the proposed Sampling Plan and develop an informed response to the proposed Assessment. Of course, if any investigation is to be conducted on WCI's property regarding non-RCRA units (including both the pre-RCRA holding pond which was properly closed under an MPCA-approved plan and the RCRA-exempt empty drum storage area), WCI fully reserves its rights to do the investigation itself, and objects to any attempt by U.S. EPA, MPCA or their contractors to enter the property and take any unilateral action such as performing soil borings or installing monitoring wells. WCI is willing, however, to undertake some voluntary investigation activities and continue to work cooperatively and in good faith with U.S. EPA and the MPCA.

Initially, WCI does not believe that the statutory and regulatory provisions cited in your August 26, 1988 letter provide a right for the Agencies to unilaterally undertake or require implementation of the proposed Sampling Plan in the specific context of the closed, pre-RCRA holding pond area or the closed, RCRA-exempt empty drum storage area. First, the old wastewater holding pond at WCI's St. Cloud facility was subject to a State-approved closure back in 1979, with 5,200 cubic yards of sediment and associated soils being removed, confirmatory samples of underlying soils taken and analyses provided to the MPCA, and proper backfilling of the area with clean soil. The area is presently covered by a warehouse building which was constructed in 1979. Second, the area previously used for storage of empty product containers prior to returning them to suppliers did not involve any RCRA-regulated activity. See, e.g., 40 C.F.R. §261.7. The WCI Freezer Division has never operated any RCRA-regulated treatment or disposal facility, and has concluded all requirements for maintaining generator-only status, as indicated in the MPCA's formal determination issued on July 28, 1988:

> This is to advise you that your request for a change in status to that of a generator accumulating waste on-site in accordance with applicable Minnesota Hazardous Waste Rules has been approved. This letter constitutes the final administrative action on your hazardous waste facility permit application for the St. Cloud Facility.

[See July 28, 1988 letter from Richard A. Svanda, P.E., which identified you as a co-correspondent.] Thus, the facility is not seeking, and is not required to seek, any RCRA permit under 42 U.S.C. Section 6921 et seq.

The Agencies' request for a detailed "RCRA Facility Assessment" included a proposal to take soil borings and install groundwater monitoring wells around the closed, pre-RCRA holding pond, and take soil borings around the RCRA-exempt empty container storage area. First, RCRA Section 3007(a), 42 U.S.C. § 6927(a), only provides the Agency with inspection and sampling authority regarding RCRA "hazardous wastes." Of course, the area of the holding pond which was closed in 1979 cannot possibly meet that definition. First, accumulated sediments and residual materials were removed under the direction of the MPCA back in 1979. Further, it would be impossible to have generated a RCRA "hazardous waste" before the operative regulations were promulgated or became effective in 1980. Accordingly, U.S. EPA Federal Register statements from 1978 to the present expressly recognize the exclusion of pre-RCRA wastes and sites from general RCRA regulation:

> RCRA is written in the present tense and its regulatory scheme is organized in a way which seems to contemplate coverage only of those facilities which continue to operate after the effective date of the regulations.

[43 Fed. Reg. 58946, 58984 (December 18, 1978); see also 45 Fed. Reg. 12746, 12747 (February 26, 1980), 45 Fed. Reg. 33154, 33170 (May 19, 1980).] Since materials generated before the categories of listed and characteristic "hazardous wastes" were adopted in 1980 are not subject to RCRA, the Agencies' reliance on Section 3007(a) is misplaced. The pre-RCRA exclusion is also confirmed by U.S. EPA in secondary guidance materials. For example, U.S. EPA's publication "Questions and Answers On Hazardous Waste Regulations," Doc. No. SW-853, contains the following dialogue:

> [QUESTION] If a plant ceases on-site disposal prior to November 19, 1980, is it subject to the RCRA regulations?
>
> [ANSWER] No. The regulations apply only to hazardous waste treatment, storage or disposal facilities that either are in operation or begin operation on or after November 19, 1980, the effective date of the regulations. If, however, the on-site facility was handling hazardous waste on the date of promulgation of the regulations (May 19, 1980), the owner or operator must notify under Section 3010 of RCRA, even though the facility closed before the regulations became effective
>
> The on-site facility would be an inactive facility, which is defined as "inactive portion" in Section 260.10 [now 40 C.F.R. § 260.10]. An inactive facility is subject to Section 7003 of RCRA. Under this section of the statute, EPA can seek injunctive action to remedy an imminent hazard's [sic] being caused by the facility.

The first time that RCRA "hazardous wastes" were given an operative definition was on May 19, 1980, and materials generated before that date cannot be RCRA "hazardous wastes."

It is also important to note that, even if WCI's closed, pre-RCRA holding pond was considered to involve RCRA "hazardous wastes" (which WCI disputes), the appropriate authority for detailed monitoring, testing and analysis (as opposed to general inspections and sampling of presently regulated waste materials) would be found under RCRA Section 3013, 42 U.S.C. § 6934. Under that section, however, the regulatory procedure for pursuing such activities would be through (1) a determination that RCRA hazardous wastes "may present a substantial hazard to human health or the environment," and (2) issuance of an administrative order. Even in this context, the Agency does not have unilateral authority to go in and undertake work on its own, but can only direct the owner or operator to submit and implement its own "proposal for carrying out the required monitoring, testing, analysis and reporting." 42 U.S.C. § 6934(c). See, e.g., In re Order Pursuant to Section 3013(a) RCRA, 550 F.Supp. 1361 (W.D. Wash., 1982). Of course, this provision is again premised on the presence of RCRA hazardous wastes (which are not involved in WCI's closed, pre-RCRA holding pond), and U.S. EPA's present request does not claim to be submitted under the authority of Section 3013.

I understand from speaking with Allen Debus and Kevin Veach (and from your August 26, 1988 letter) that the Agencies also consider the requested investigation to be authorized under the "corrective action" provisions of the Hazardous and Solid Waste Amendments of 1984. The statutory authority for corrective action in RCRA Section 3004(u), 42 U.S.C. § 6924(u), only applies to situations "at a treatment, storage, or disposal facility seeking a permit under this subchapter . . . ." [Emphasis supplied.] Since WCI is not "seeking a permit," the Agencies' reliance on this provision is misplaced. Further, the corrective action authority would only apply to circumstances where there are identified "releases of hazardous waste or constituents," and your August 26, 1988 letter acknowledges that the "purpose of the proposed sampling visit [is] to determine whether releases have ever occurred. . . ." Neither Section 3004(u) nor the implementing regulations for RCRA corrective action provide an independent basis for requiring investigation and monitoring relating to non-RCRA units which are not known to involve "releases of hazardous waste or constituents."

The limited scope of the corrective action authority is also reflected in the derivative regulatory enactment. In the final rulemaking published at 50 Fed. Reg. 28746 (July 15, 1985), the regulations requiring corrective action activities were promulgated in 40 C.F.R. Part 264 (at 40 C.F.R. §§ 264.100 and 264.101). Consistent with the express statutory scope, the regulations in Part 264 apply prospectively and only to facilities seeking (or required to seek) a final Part B RCRA permit. As noted in United

Technologies Corp. v. U.S. EPA, 821 F.2d 714, 722 (D.C. Cir. 1987), "Section 3004(u), in essence, creates the broad duty to take corrective action as a *quid pro quo* to obtaining a permit." (Emphasis supplied.) Since WCI is not seeking such a permit, and has been certified by the MPCA as having achieved final closure and exemption from any requirement to pursue a final permit, Part 264 (including §§ 264.100 and 264.101) is inapplicable to WCI's St. Cloud facility. See 40 C.F.R. §§ 264.1 and 264.3. Part 264 applies only to regulated TSD facilities seeking a final permit, and the St. Cloud plant is not such a facility.

The only remaining "corrective action" authority included in the Hazardous and Solid Waste Amendment of 1984 is contained in RCRA Section 3008(h), 42 U.S.C. § 6928(h), which provides for issuance of "an order requiring corrective action or such other response measure" to "a facility authorized to operate under section 6925(e) of this title . . . ." As indicated above, WCI's St. Cloud facility has been certified by the MPCA to not require a RCRA permit (i.e., it does not require authorization "to operate under Section 6925(e)"), and Section 3008(h) of RCRA, 42 U.S.C. § 6928(h), is likewise inapplicable. In any event, the Agencies' request to conduct an investigation relating to the closed, pre-RCRA holding pond and the RCRA-exempt empty container storage area is admittedly not based on any determination (1) "that there is or has been a release of hazardous waste into the environment"; or (2) that any such a release could be "from a facility authorized to operate" under RCRA.

WCI believes that the Agencies' authority is limited to entering the facility at reasonable times to investigate, inspect or obtain samples directly relating to RCRA hazardous wastes. 42 U.S.C. § 6927(a). In addition, RCRA Section 3013 allows the Agencies to issue an order seeking a company's proposal to carry out "monitoring, testing, analysis, and reporting," if a determination has been made that the presence or release of RCRA hazardous wastes "may present a substantial hazard to human health or the environment." 42 U.S.C. § 6934. Neither the closed holding pond from which pre-RCRA materials were removed in 1979, nor the RCRA-exempt empty container storage area which is no longer used, presents a situation where the inspection, monitoring, analysis and testing provisions of RCRA would be applicable.

Despite the apparent lack of statutory authorization for the activities requested by the Agencies, WCI wants to continue its policy and practice of working constructively with regulatory agencies whenever possible. Toward that end, WCI is willing to pursue, at its own cost, a limited investigation of the closed holding pond and empty container storage areas. First, WCI agrees

to voluntarily take the two (2) soil borings, and perform related sampling and analysis, relating to the empty container storage area. With respect to the closed, pre-RCRA holding pond, WCI believes that a more limited initial investigation would be appropriate.

Since the expenses of excessive drilling and laboratory work repidly inflate costs, WCI will limit the investigation relating to the closed, pre-RCRA holding pond to two (2) soil borings and two (2) downgradient monitoring wells. In addition, background soil samples will be collected. I understand that groundwater flow direction is well defined in this area, and two down gradient wells should provide an adequate system to identify any concerns. Similarly, limiting the soil sampling to two (rather than four) borings should avoid unnecessary duplicative work. If this initial assessment indicates substantive reasons to expand the preliminary investigation, WCI will consider the need for additional work. Finally, WCI does not perceive any reason for performing repetitive analyses of soil borings in this situation. WCI will collect split samples at 2 1/2 foot intervals from each of the 4 borings, with one portion to be preserved for laboratory analysis and one portion for head space analysis. The two samples from each boring indicating the highest levels of volatile organics will undergo extraction and laboratory analysis for volatile organic compounds (VOCs) according to EPA SW 846 methods. In addition, both of the soil borings in the area of the closed holding pond (as well as the background boring) will have five samples analyzed for RAS total metals.

screen only

I trust that this voluntary effort by WCI will satisfy the Agencies' concerns. Please do not hesitate to call if you have any questions regarding this matter. WCI will work directly with Allen Debus and Kevin Veach to implement the activities agreed to by this letter, which will be overseen by Dan Comeau at Pace Laboratories.

Sincerely yours,

Dale E. Stephenson/kb

Dale E. Stephenson

DES/kb

cc: Kevin Veach
Allen A. Debus
James L. Calhoun
Raymond G. Dauscher, Esq.
Daniel Marques
Daniel Comeau

Minnesota Pollution Control Agency
520 Lafayette Road, Saint Paul, Minnesota 55155
Telephone (612) 296-6300

Celebrate MINNESOTA 1990

July 10, 1990

Mr. Richard Clute
Environmental Affairs Coordinator
WCI Freezer Division
701 33rd Avenue North
St. Cloud, Minnesota 56303

RE: WCI, St. Cloud, EPA Identification Number MND092304856

Dear Mr. Clute:

The RCRA Facility Assessment (RFA) of the above-referenced facility has been completed. Based on the results of soil and ground water analyses, the conclusion of the RFA is that no further investigation is justified. Enclosed is a copy of the letter of transmittal of the RFA report to the U.S. Environmental Protection Agency (EPA). The EPA agrees with the conclusion of the RFA report. This conclusion effectively completes the closure process at this facility.

If you have any questions or comments, please call Sarah Sevcik of my staff at 612-642-0432.

Sincerely,

Thomas B Townsend for

Bruce W. Brott, P.E., Supervisor
Permit and Review Unit
Regulatory Compliance Section
Hazardous Waste Division

BWB:mk

cc: Mr. Charles Slaustas U.S. Environmental Protection Agency, Chicago

5HR-13

AUG 2 8 88

Mr. Daniel Marquis, P.E.
MCI Major Appliance Group
P.O. Box 182056
Columbus, OH 43218

RE: MCI Freezer
MND092304858

Dear Mr. Marquis:

The United States Environmental Protection Agency (U.S. EPA) requests clearance to conduct a RCRA Facility Assessment sampling visit beginning September 12, 1988. It is anticipated that the visit will require 1 week of dedicated activity by staff of the U.S. EPA, its contractors, who are Jacobs Engineering and Metcalf & Eddy, and also the Minnesota Pollution Control Agency (MPCA). It may be necessary to utilize portions of the following week for completing the intended scope of work. You have already been provided with the proposed sampling plan under separate cover.

Authority to conduct sampling of hazardous wastes rests in RCRA Section 3007(a), in which it is stated that U.S. EPA inspectors may "...enter...any establishment or other place...to inspect and obtain samples from any person of any such wastes..." Furthermore, as explained in the Federal Register, July 15, 1985, Vol.50, pp. 28711 - 28712, owners and/or operators of facilities seeking a RCRA permit are subject to the corrective action provisions of the Hazardous and Solid Waste Amendments of 1984. Since your facility located in St. Cloud, Minnesota acquired interim status for operation of a hazardous waste container storage unit, MCI will be subject to such provisions. However, it is primarily the purpose of the proposed sampling visit to determine whether releases have ever occurred from solid waste management units operated at the site.

Unless written correspondence proves contrary, we will assume we have your consent to conduct the inspection pursuant to our statutory authority. Please contact Mr. Allen A. Debus of my staff, at (312) 886-6186, for further details.

Sincerely yours,

ORIGINAL SIGNED BY
CHARLES B. SLAUSTAS

Charles B. Slaustas, Chief
RM/UI Section

cc: Kevin Veach, MPCA

PERMITS	TYP.	AUTH.	IL. CHIEF	IN. CHIEF	MI. CHIEF	MN/WI CHIEF	OH. CHIEF	RPB CHIEF	O.R. A.D.D.	
INIT.	JO	BB				CBS				
DATE	8/26	8-26				8/26				

Minnesota Pollution Control Agency

August 12, 1988

Mr. Daniel Marques, P.E.
WCI Major Appliance Group
P.O. Box 182056
Columbus, Ohio 43218

Dear Mr. Marques:

RE: RCRA Facility Assessment, WCI Freezer Division
St. Cloud, Minnesota

I am writing to request some additional information which will help the Minnesota Pollution Control Agency (MPCA) complete its investigation at WCI's St. Cloud facility. In 1986, U.S. Environmental Protection Agency (EPA) contractors began a RCRA Facility Assessment (RFA) of the St. Cloud facility. Their report concluded that sampling should be done in two areas to determine the existence of soil or ground water contamination. These areas are the empty container storage area south of the paint building and the area of the former wastewater lagoon. We are currently developing a sampling plan for these areas. As I discussed with Mr. Dick Clute on August 4, 1988, the sampling would tentatively include two soil borings in the container area and four soil borings and three monitoring wells related to the former lagoon. The parameters to be tested include metals and volatile organic compounds. Samples would be collected by an EPA contractor and could be split with WCI if you wish. We would like to do the sampling during the week of September 12. As we previously discussed, the MPCA will provide you with a final sampling plan when one is completed, most likely by August 22.

If possible, we will conduct all of the lagoon related soil borings outside of the warehouse building in order to avoid disrupting warehouse activities. Please assist us in this by sending us blueprints or drawings which accurately show the boundaries and locations of the lagoon and the new warehouse addition which lies over it. We wish to determine the boundaries of the former lagoon with respect to the new warehouse addition. If possible the drawings should have a scale of at least one inch = 100 feet, show the date of the lagoon drawing and show distances from both 8th Street North and the west walls of the old warehouse building.

Phone:_____
520 Lafayette Road, St. Paul, Minnesota 55155
Regional Offices • Duluth/Brainerd/Detroit Lakes/Marshall/Rochester

Please send us your response by August 22. If you have any questions, please call me at 612/296-8582.

Sincerely,

Kevin Veach

Kevin Veach
Permit and Review Unit
Hazardous Waste Section
Hazardous Waste Division

KV:dmf

cc: Dick Clute, WCI, Freezer Division, St. Cloud
Chuck Slaustas, EPA, Region V, Chicago

C. Slaustas

Minnesota Pollution Control Agency

October 28, 1986

Mr. Danial Marques
WCI Appliance Group
300 Philipi Road
P. O. Box 182056
Columbus, Ohio 43218

Dear Mr. Marques:

RE: Response to October 15 Meeting with Franklin Manufacturing Company

Thank you for your prompt response to our meeting on October 15 at the Minnesota Pollution Control Agency (MPCA) office. Please allow me to expand and clarify a few points in your letter.

Representing the MPCA at the meeting were Steven A. Reed, Supervisor; Kevin C. Veach, Project Engineer; and George E. Johnson, Project Hydrologist; Bruce Nelson was not present.

Copies of items 4, 6, 7, and 8 of the September 8, 1986 MPCA letter were mailed to Dick Clute of Franklin Mfg. on Thursday October 16.

On October 21 a letter was sent to Dick Clute describing the goals and stages of the RCRA Facility Assessment (RFA) as well as a detailed list of items to be reviewed during a visual site inspection. As mentioned in the meeting, the purpose of the RFA is to determine the need for further investigation of releases. Contrary to your statement on page two of your letter, the MPCA did not state that an RFA would be limited to a visual site inspection. As I stated explicitly, the RFA may include a sampling visit if it is needed. We did agree that if a sampling visit is needed, a detailed sampling plan and sampling date will be discussed with representatives of Franklin Mfg. prior to the visit.

Phone:_____
1935 West County Road B2, Roseville, Minnesota 55113-2785
Regional Offices • Duluth/Brainerd/Detroit Lakes/Marshall/Rochester

If you have any questions please feel free to contact Kevin Veach at 612/297-1794.

Sincerely,

Steven A. Reed, P.E., Supervisor
Hazardous Waste Permit and Review Unit
Hazardous Waste Section
Solid and Hazardous Waste Division

SAR:KV:cv

cc: Richard Clute, Franklin Mfg.
Charles Slaustas, Region V, EPA

C. Stamstad

MND092304856

Minnesota Pollution Control Agency

Mr. Richard Clute
Franklin Manufacturing Company
701 - 33rd Avenue North
St. Cloud, Minnesota 56301

Dear Mr. Clute:

As part of the permitting process under the 1984 Resource Conservation Recovery Act (RCRA) amendments, a RCRA Facility Assessment (RFA) is required of your facility. The objective of this review is to determine whether there have been, or are likely to be, releases of hazardous wastes or hazardous constituents at the facility which require further investigation. This analysis will provide information to establish the need for subsequent remedial investigations. The first stage of the RFA is a preliminary review (PR) which consists of a search of all files which may be obtained prior to a site visit. The goals of the PR are to identify solid waste management units and gather information on possible releases.

The second stage of this analysis is a site visit to your facility to verify and determine the location of all "Solid Waste Management Units" (SWMUs). We are requesting permission for a U.S. Environmental Protection Agency (EPA) contractor to visit your facility for the purpose of a visual inspection of these SWMUs. This site visit is to enable the contractor to attain a technical understanding of current and historical waste flows. Photographs of each SWMU are to be taken to document conditions at the facility and waste management procedures used. No samples will be taken during this site visit.

As a final stage of the RFA, sampling may be required. If sampling is required, you will be contacted by the Minnesota Pollution Control Agency and a sampling plan and date will be arranged prior to the sampling visit.

Phone:_____
1935 West County Road B2, Roseville, Minnesota 55113-2785
Regional Offices • Duluth/Brainerd/Detroit Lakes/Marshall/Rochester

The contractor may require the assistance of some of your personnel in reviewing solid waste flow, associated units, past and present disposal practices, etc. The attachment to this letter is a partial list of items which the contractor will consider during the site visit to clarify and supplement previously submitted information. The list is separated into general items and items related to specific SWMUs. Additional issues may be reviewed at the time of the site visit.

We would like to conduct the site visit during the week of October 27, 1986. Should you have any questions please contact Kevin Veach of my staff at 612/297-1794.

Sincerely,

George Pruchnofski, PE.
for

Steven A. Reed, P.E., Supervisor
Hazardous Waste Permit and Review Unit
Hazardous Waste Section
Solid and Hazardous Waste Division

SAR/jmh

Enclosure

cc: Mr. Charles Slaustas, EPA Region V, Illinois

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF:

FEB 10 1989

Dale E. Stephenson, Esq.
Squire, Sanders, & Dempsey
1800 Huntington Building
Cleveland, Ohio 44115

Re: White Consolidated Industries, Inc., Freezer Division, St. Cloud, MN

Dear Mr. Stephenson:

I have reviewed your letter to Mr. Charles B. Slaustas questioning U.S. EPA's authority to conduct soil sampling and groundwater monitoring at the White Consolidated Industries, Inc. Freezer Division in St. Cloud, Minnesota (WCI). As you might expect, the Agency's interpretation of its inspection, sampling, and corrective action authority is somewhat broader than that which you articulated.

As your letter acknowledged, pursuant to RCRA Section 3007(a), U.S. EPA has authority to enter, at reasonable times, any facility where hazardous wastes are or have been generated, stored, disposed of, or transported from, to inspect and obtain samples of such wastes. RCRA does not limit the Agency's inspection and sampling authority to Solid Waste Management Units (SWMUs). EPA may inspect any area in which hazardous wastes may be or may have been stored, and take background samples if helpful to aid in the detection of releases. There is simply no mention of SWMUs in 3007(a) or any indication that Congress implicitly intended to limit EPA's inspection and sampling authority to SWMUs. The purpose of an inspection and sampling visit is to detect the presence of hazardous wastes. The Agency can not countenance an interpretation that would emasculate its ability to pursue RCRA's broad remedial goals.

The Agency rejects the view that it is "impossible to have generated a RCRA hazardous waste before the regulations were promulgated or became effective," and as a result, only hazardous waste management units operating at the time of RCRA's enactment are subject to EPA's sampling and monitoring authority. While RCRA is generally characterized as a prospective regulatory scheme, it clearly relates to present and future conditions resulting from past disposal practices, including releases of hazardous waste from closed, pre-RCRA units within facilities.

This view has been upheld by the federal courts in U.S. v. Northeastern Pharmaceutical, 810 F.2d 726, 741, (8th Cir. 1986) and U.S. v. Price, 523 F.Supp. 1055, 1071-72 (D. N.J. 1981).

In addition, as you observed, RCRA Section 3013 empowers the Agency to order a facility to conduct monitoring and analysis that the Agency deems reasonable to ascertain the nature and extent of the release of hazardous wastes from a facility at which hazardous waste has been stored or disposed of. Such monitoring may be carried out by the Agency if it is determined that the facility could not carry out the monitoring in a satisfactory manner. RCRA Section 3013(d)(1).

Also, the dialogue quoted from the U.S. EPA publication discusses whether a facility that ceased disposal prior to date of promulgation of RCRA would be regulated under RCRA. It does not address whether a release of hazardous waste from a unit closed prior to RCRA but within a RCRA storage facility may be subject to RCRA regulations. Moreover, the statement that an inactive facility is subject to Section 7003 does not limit the EPA solely to injunctive relief to remedy an imminent hazard.

You would also limit the Agency's 3008(h) corrective action authority to only those facilities presently authorized to operate a treatment, storage, or disposal facility. The Agency and the federal courts have a more generous view of EPA's Section 3008(h) authority. The Agency has routinely exercised corrective action authority over facilities that did not obtain interim status, lost interim status, and facilities whose interim status was terminated following certification of clean closure. The agency interprets the language of Section 3008(h)(1), specifically "release of hazardous waste into the environment from a facility authorized to operate under 6925(e)" to mean that the corrective action provisions are applicable to a facility that should have been authorized, is presently authorized, or was authorized, at any time, to operate under interim status. This approach is consistent with Congressional intent to assure that significant environmental problems are addressed at facilities that have treated, stored, or disposed of hazardous waste. See U.S. v. Indiana Woodtreating, 686 F.Supp. 218 (S.D. IND. 1988) holding that 3008(h) applies to facilities that have never obtained interim status and U.S. v. Clow Water Systems, __F.Supp.__, slip op. C2-87-720, Lexis 14666 (S.D. Ohio, Eastern Division, December 19, 1988), applying 3008(h) to facility that lost interim status.

Furthermore, Clow holds that 3008(h) encompasses hazardous constituents as well as hazardous waste. The Court found that the EPA's interpretation that "hazardous wastes" as used in 3008(h) also includes hazardous constituents, was reasonable and

consistent with Congressional intent and the Agency's regulations.

Note also that Section 3008(h) applies to releases of hazardous waste from a facility and is not limited to solely releases from hazardous waste management units.

U.S. EPA is encouraged by WCI's willingness to voluntarily conduct elements of the proposed sampling plan. With two exceptions, WCI must adhere to the proposed sampling plan to ensure that the sampling scheme will provide valid, informative data that will permit U.S. EPA to determine whether further remedial work is or is not required.

WCI's proposal to take two soil borings instead of four, from the vicinity of the old lagoon, is acceptable to U.S. EPA. All other terms of the proposed sampling scheme, including the installation of an upgradient monitoring well, must be followed.

WCI may use its own contracted drilling equipment and sampling crews. At a minimum, however, U.S. EPA and MPCA personnel and their authorized representatives must be granted site access to observe all phases of well installation, sampling, and soil borings and to obtain split samples from each point sampled. This permission must also extend to all monitoring/sampling activities subsequent to the initial sampling taken at the time the wells are installed.

U.S. EPA is confident of its authority to proceed with the proposed sampling and monitoring plans. Nonetheless, the Agency is pleased with WCI's offer to participate in the investigation and is willing to permit WCI to conduct the sampling and monitoring program as outlined in this letter. In light of the Agency's position I believe this matter is susceptible to a quick resolution acceptable to all parties.

Sincerely,

Mary L. Fulghum

Mary L. Fulghum
Assistant Regional Counsel
(312) 886-5313

cc: Daniel Marquis
Charles B. Slaustas
Allen Debus
Kevin Veach

Minnesota Pollution Control Agency
520 Lafayette Road, Saint Paul, Minnesota 55155
Telephone (612) 296-6300

Celebrate MINNESOTA 1990

April 30, 1990

Mr. Charles Slaustas
U.S. Environmental Protection Agency
Region V 5HR-13
230 South Dearborn Street
Chicago, Illinois 60605

Dear Mr. Slaustas:

RE: RCRA Facility Assessment (RFA)
for WCI, St. Cloud, EPA I.D. MND092304856

Enclosed is the completed RFA report for WCI Freezer Division in St. Cloud, Minnesota. I have not sent copies of the text of the following sections because they should already be in your files:

III. Visual Site Inspection Report, by AT Kearney;
VI.A. Soil Analysis Report, by Region V Central Regional Laboratory;
VI.B. Groundwater Analysis Report, by Region V Central Regional Laboratory;
Appendix 3. Groundwater Sampling Visit Report, by Metcalf and Eddy, September 1989.

Also, I have corrected an error on page 2 of the Metcalf and Eddy, September 1989, ground water sampling report. Please insert the enclosed page into your copy of the report.

The conclusion of the RFA is that no further investigation is justified based on the soil and ground water analyses.

If you have any questions or comments, please call Bruce Brott at 612/642-0449. As a final goodbye let me say I have enjoyed working with you and your staff and I wish you all the best.

Sincerely,

Kevin C Veach

Kevin C. Veach
Permit and Review Unit
Regulatory Compliance Section
Hazardous Waste Division

KCV:df

Enclosure

Sarah Sevcik 612-642-0432

FACILITY ASSESSMENT

for WCI FREEZER DIVISION

ST. CLOUD, MINNESOTA

EPA. ID #MND092304856

by the Minnesota Pollution Control Agency

April, 1990

TABLE OF CONTENTS

I. INTRODUCTION

This report presents a RCRA Facility Assessment (RFA) for the WCI Freezer Division facility at 701 33rd Avenue North, St. Cloud, Minnesota U.S. EPA (Environmental Protection Agency) identification number MND092304856. Under the Hazardous and Solid Waste Amendments of 1984 (HSWA), corrective action is required where necessary at all hazardous waste facilities. As part of the corrective action process, the WCI facility was investigated by the U.S. EPA and the Minnesota Pollution Control Agency (MPCA) to determine whether releases of hazardous constituents to the environment had occurred. Part of this work was undertaken by the MPCA and part by contractors for the U.S. EPA. This report covers all phases of the RFA process which include: 1) a Preliminary Review (PR) of all existing records pertaining to the site, 2) a Visual Site Inspection (VSI) conducted to identify all sources of potential releases and 3) a Sampling Visit (SV) to obtain any samples necessary to determine if there are any releases which require further investigation.

II. EXECUTIVE SUMMARY

White Consolidated Industries, Freezer Division, (WCI), formerly Franklin Manufacturing Company, is a freezer manufacturer located in the northwest part of St. Cloud, Minnesota. Franklin submitted a Part A notification in 1980 as a hazardous waste storage facility. A Part B application was requested by the MPCA in February, 1985. In May, 1985 the Company requested closure of the facility and return to generator status. On July 28, 1988, after closure activities were completed, the MPCA approved a return to generator status for WCI Freezer Division. Prior to this, in 1986 a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was begun.

A PR was conducted by MPCA staff and also by Pope-Reid Associates under sub-contract to A.T. Kearney, Inc. for the U.S. EPA. A Visual Site Inspection (VSI) was conducted on November 13, 1986, by Pope-Reid with MPCA staff present. This process identified sixteen (16) Solid Waste Management Units (SWMUs). Two of these SWMUs were the regulated storage units. The PR/VSI report produced by Pope-Reid Associates was submitted to the MPCA in late 1987. Two SWMUs were recommended for sampling to determine whether hazardous constituents were released to the environment: 1) a wastewater lagoon which received phosphatizer and paint system wastewaters from 1965 to 1979 and 2) an outdoor empty container storage area. The PR/VSI report also recommended assessing the integrity of the sewer system. This was not done.

In 1988 the MPCA staff produced a sampling plan and along with EPA staff negotiated with WCI over site access and the extent of sampling. In June, 1989 soil samples were collected from a background location, the outdoor container storage area and from the lagoon area. One monitoring well was installed upgradient of the lagoon and two wells were installed downgradient of the lagoon. In August, 1989 the wells were sampled by the Company and the EPA contractor. The results of the analyses done for the regulatory agencies are included in the body of the report in Section VI. The analysis done for WCI is included as Appendix 4.

Results of both the soil sampling and the ground water sampling indicate no contamination which would justify continuing the investigation at this time. Some volatile hazardous constituents were detected in both the soil and the ground water samples. These compounds were also detected in the laboratory blanks and may be attributed to laboratory contamination. Toxic metals, where detected, were of such low levels as to be indistinguishable from background levels.

III. VISUAL SITE INSPECTION REPORT

IV. SAMPLING PLAN

A. Introduction

A sampling plan was originally written by the MPCA for sampling of soil and ground water. This sampling plan is included as Appendix 1 to this report. WCI objected to having EPA contractors conduct borings and well installation on its property and offered to use its own contractor to undertake the sampling and to allow the regulatory agencies to be present to split samples. The MPCA and EPA agreed to this and required WCI to submit a sampling plan which would accomplish the objectives of the original MPCA sampling plan. The sampling plan produced by Pace Laboratories, Inc. for WCI was approved by the MPCA with concurrence from EPA subject to the addendum provided in the May 17, 1989, letter from Pace Laboratories and on the condition that MPCA would collect five volatile organics samples from each boring rather than two as proposed by WCI. The May 17, letter from Pace Laboratories follows the sampling plan. MPCA staff or EPA contractors were present to split all samples.

IV. B. Pace Laboratories, Inc. Sampling Plan

WCI FREEZER DIVISION

May 3, 1989

RECEIVED
MAY 4 1989
MPCA, HAZARDOUS WASTE DIVISION

Mr. Kevin Veach
Permit and Review Unit
Hazardous Waste Section
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Mr. Allen A. Debus
U.S. Environmental Protection
Agency -- Region V
230 South Dearborn Street
Chicago, IL 60604

Gentlemen:

I am submitting WCI's Proposed Sampling Work Plan which was prepared by our consultants Pace Laboratories, Inc. I understand that Dan Comeau from Pace has communicated directly with Kevin Veach in preparing this plan. We look forward to your prompt concurrence in this proposal so that we can proceed with the work on schedule.

Please contact Dan Comeau if you have any technical questions. Otherwise, please feel free to contact either me or Dale Stephenson if you would like to discuss this further.

Sincerely,

Richard B. Clute
Environmental Affairs Coordinator

RBC/ski
Enclosure

cc: Mary L. Fulghum, Esq. (w/encl.)
James L. Calhoun (w/encl.)
Raymond G. Dauscher, Esq. (w/encl.)
Dale E. Stephenson, Esq. (wo/encl.)
Daniel A. Comeau (wo/encl.)

pace laboratories, inc.
PROFESSIONAL ANALYTICAL CHEMISTRY & ENGINEERING

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa

1710 Douglas Drive North □ Minneapolis, MN 55422 □ Phone (612) 544-5543 □ FAX (612) 544-3974

Proposed Sampling Work Plan
WCI Freezer Division
St. Cloud, Minnesota

Prepared For:

WCI Freezer Division
St. Cloud, Minnesota

Prepared By:

PACE Laboratories, Inc.
Minneapolis, Minnesota

Proposed Sampling Work Plan
WCI Freezer Division
St. Cloud, Minnesota

all 5 increments analyzed Empty Container and Lagoon

I. Empty Container Storage Area

Two soil borings will be drilled to a depth of 20 feet equidistant from the ends of the empty container storage area. Soil samples will be collected at 2 1/2 foot intervals using a split-spoon sampler. Samples will be screened utilizing a HNU Meter to detect organic contamination. Two samples from each borehole with the highest readings will be submitted to the laboratory for volatile organic compound (VOC) analysis (EPA SW 846 Method 8240). A discussion of the instrumentation and field screening procedure is provided in Section III below. Soil from samples having lower organic screening concentrations than the two highest readings will, upon request, be properly preserved and made available to the MPCA and/or the U.S. EPA for additional VOC analyses. Approximate sample locations are shown on Figure 1 (attached).

II. Closed Holding Pond

Near the closed holding pond, two soil borings will be drilled to a depth of 20 feet. Starting at the former base of the pond, soil samples will be collected at 2 1/2 foot intervals using a split-spoon sampler. Samples will be screened utilizing a HNU Meter to detect organic contamination. Two samples from each bore hole with the highest readings will be submitted to the laboratory for volatile organic compound analysis (EPA SW 846 /Method 8240). In addition, all samples below the depth of the pond from each boring will be analyzed for RAS total metals. Soil from samples having lower organic screening concentrations than the two highest readings will, upon request, be properly preserved and made available to the MPCA and/or the U.S. EPA for additional VOC analyses. Approximate sample locations are shown on Figure 1.

One background soil boring will be drilled to a depth of 20 feet. The background soil boring location will be selected based on site conditions. Soil samples will be collected with a split-spoon sampler at 2 1/2 foot intervals. The boring at this location will be drilled in a manner so as to also allow construction of an upgradient monitoring well (discussed below). Five soil samples, including those corresponding to the same depths as at the closed holding pond, will be analyzed for RAS total metals. Soil from samples having lower organic screening concentrations than the two highest readings will, upon request, be properly preserved and made available to the MPCA and/or the U.S. EPA for additional VOC analyses. The approximate sample location is shown on Figure 1.

Downgradient of the closed holding pond, two monitoring wells will be installed. Upgradient of the closed holding pond, one monitoring well will be installed in conjunction with the background soil boring.

The monitoring wells will be installed in accordance with Minnesota Department of Health regulations. The wells will be installed to intersect the water table. The monitoring wells will be constructed with 2 inch stainless steel screens and risers. The screens will be 10 feet long with #10 slot size. A 4 inch diameter protective casing with a locking cap will be installed. Three protective posts will also be installed around each monitoring well.

Following well installation and development, ground water samples from each monitoring well will be collected utilizing a dedicated stainless steel bailer. Field blanks for volatile organic compounds will be collected at each location and a travel blank will be provided. Collected samples will be analyzed for volatile organic compounds and RAS dissolved metals.

III. HNU Screening

Soil samples collected for volatile organic compound screening will be placed in 500 ml glass amber containers, sealed with plastic wrap and covered with a Teflon™ lined cap. Each bottle will be half filled with sample. The soil container will be allowed to equilibrate in a warm location for 30 minutes. The sample will then be screened for the presence of volatile organic compounds using a HNU Model ISPI-101 trace gas analyzer supplied with a 10.2 eV lamp.

Selected portions of the HNU instruction manual are attached which describe the instrument, it's calibration and the relative photoionization sensitivities of various gases to the 10.2 eV lamp.

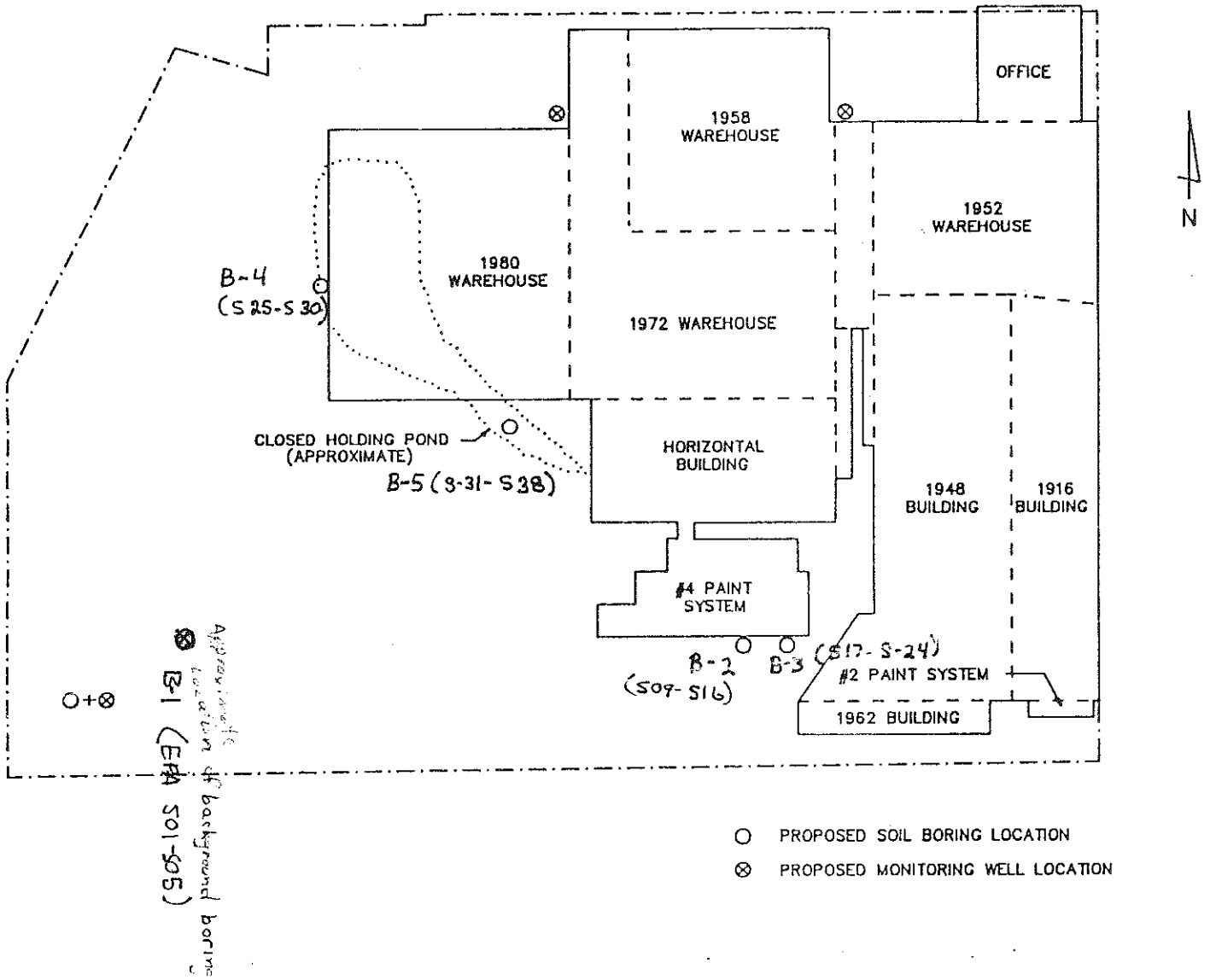
IV. Anticipated Project Schedule

The following project schedule is proposed:

Task	Schedule
Submit work plan to regulatory agencies for review and comment	Week of April 24, 1989
Receive regulatory approvals	Week of May 15, 1989
Commence field work	Week of June 5, 1989
Complete field work	Week of June 19, 1989
Provide final report	Week of July 3, 1989

FIGURE 1
WCI FREEZER DIVISION
SOIL BORING AND WELL LOCATIONS

PACE Laboratories, Inc. April 21. 1989



INSTRUCTION MANUAL
TRACE GAS ANALYZER
HNU MODEL ISPI-101

HNU Systems, Inc.
160 Charlemont Street
Newton, MA 02161-9987
(617)964-6690

January 1987

SECTION 1

GENERAL INFORMATION

1.1 INTRODUCTION

This manual describes the operation, maintenance and parts list for the Trace Gas Analyzer, Model ISPI 101, HNU Systems Inc.

1.2 EQUIPMENT DESCRIPTION

The Trace Gas Analyzer (see Figure 1-1), is a portable instrument used to detect, measure, and provide a direct reading of the concentration of a variety of trace gases in many industrial or plant atmospheres. The analyzer employs the principle of photoionization. This process involves the absorption of ultra-violet light (a photon) by a gas molecule leading to ionization:

$$RH + h\nu \longrightarrow RH^+ + e^-$$

in which

RH = Trace gas
hv = Photon with an energy level equal to or greater than the ionization potential of RH.

The sensor consists of a sealed ultraviolet (UV) light source that emits photons with an energy level high enough to ionize many trace species, particularly organics, but not high enough to ionize the major components of air, O2, N2, CO, CO2 or H2O.

A chamber exposed to the light source contains a pair of electrodes: one a bias electrode and the second a collector electrode. When a positive potential is applied to the bias electrode a field is created in the chamber. Ions formed by the absorption of photons are driven to the collector electrode. The current produced is then measured, and the corresponding concentration is displayed on a meter directly in parts per million (ppm).

To minimize absorption or decomposition of sample gases, a rapid flow of sample gas is maintained through the ion chamber, which is small, made of inert material and located at the sampling point.

The analyzer consists of a probe, a readout assembly, and a battery charger. The probe contains the sensing and amplifying circuitry; the readout assembly contains the meter, controls, power supply and rechargeable battery. The analyzer will operate from the battery for approximately 6 hours.

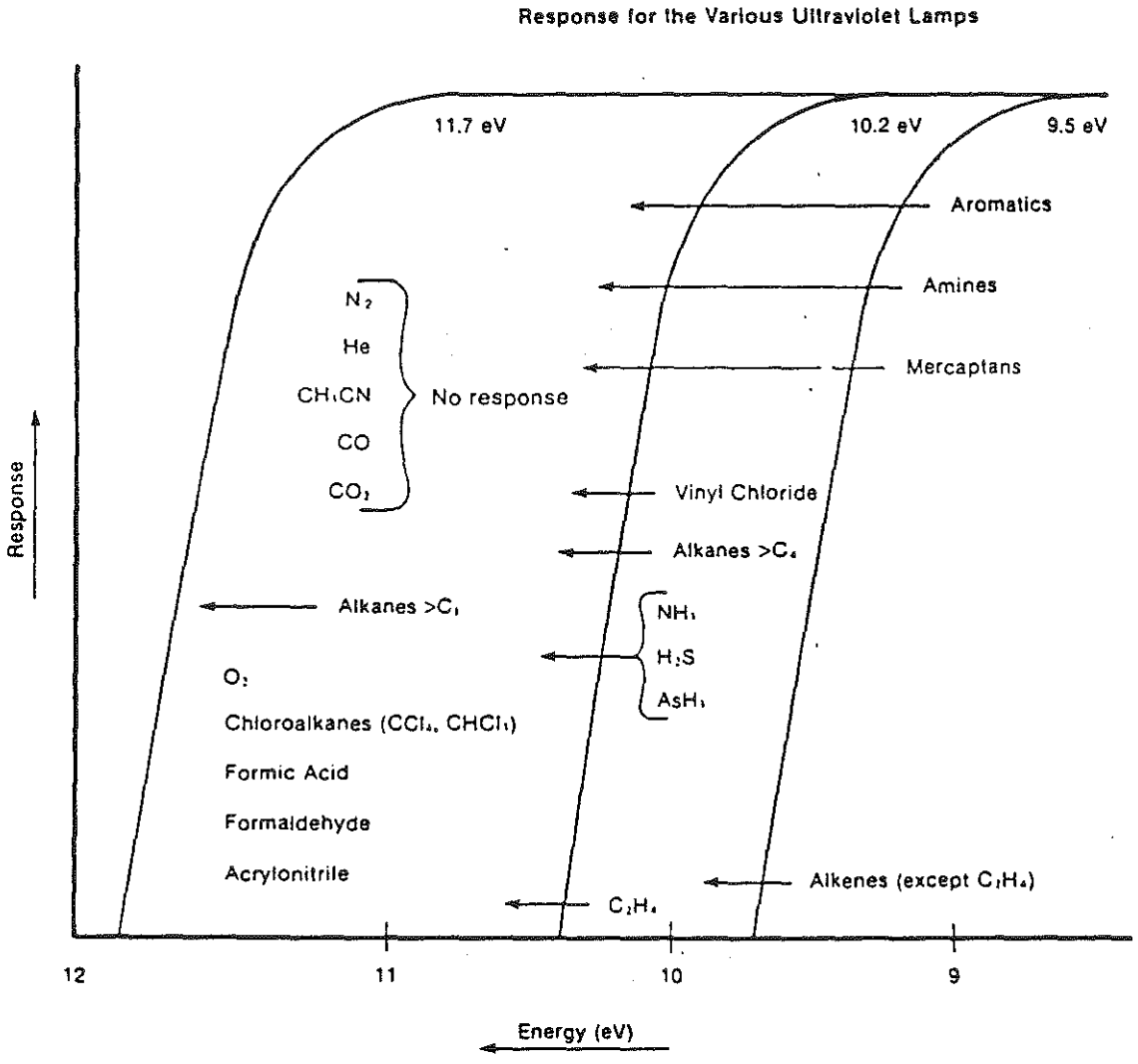


FIGURE 1-2
RESPONSE TO VARIOUS COMPOUNDS
FOR EACH ULTRAVIOLET LAMP

TABLE 1-1

SPECIFICATION DATA

DESIGN FEATURES

Range settings	0 to 20, 200, 2000 ppm (other ranges available on request)
Lamp rating	10.2 eV standard, 9.5 or 11.7 eV optional

CHARACTERISTICS (see NOTE)

Detection Range *	0.1 to 2000 ppm (parts per million by volume)
Minimum Detection Level *	0.1 ppm
Maximum Sensitivity *	0 to 20 ppm FSD at SPAN = 9.8 (full scale deflection) 0 to 2 ppm FSD at SPAN = 0.0
Repeatability *	+/- 1% of FSD
Linear Range *	0.1 to 400 ppm
Useful Range *	0.1 to 2000 ppm
Response Time	Less than 3 seconds to 90% of FSD
Ambient Humidity (10.2 and 9.5 eV lamps)	up to 90% RH (relative humidity)
Operating Temperature, Ambient (10.2 and 9.5 eV lamps)	-10 to 40 degrees C. 14 to 104 °F
Operating Time on Battery, continuous use	Approximately 6 hours; at lower temperature, use time is reduced due to the effect of cold on the battery.

TABLE 1-1 cont.

Recharge time from full discharge	Full recharge: 12 to 14 hours. Unit can be left on the charger and be continuously recharged whenever the unit is not in use (the analyzer will not operate while the unit is on the charger: an Intrinsically Safe feature).
Recharge current	Max 0.4 amps at 15 V DC
Battery Charger Power	120 V AC, single phase, 50-60 Hz 1.5 Amps 230 V AC, single phase, 50-60 Hz 0.75 Amps

NOTE: * When equipped with 10.2 eV Probe with SPAN set at 9.8 and measuring benzene. Values will vary for other compounds and conditions.

One method of sampling the calibration gas is illustrated in Figure 3-1. Connect the cylinder to one leg of the tee, a flow meter to the opposite leg, and the probe to the third leg. The flow meter does not require a valve. If there is a valve, it must be left wide open. The flowmeter is only to indicate excess flow. Adjust the flow from the regulator such that only a little excess flow is registered at the flowmeter. This insures that the ISPI 101 sees the calibration gas at atmospheric pressure and ambient temperature. This calibration procedure applies only to calibration with a high pressure cylinder (with regulator).

A second method of calibration uses HNU Calibration Gas with the regulator at a preset flow (250 ml/min), and only a butt connection between the regulator and the probe extension is required (see Figure 3.2).

d. Usage - Generally, a gas cylinder should not be used below 200-300 psi as pressure effects could cause concentration variations. The cylinder should not be used past the recommended age of the contents as indicated by the manufacturer. In case of difficulty, verify the contents and concentration of the gas cylinder.

e. Safety - Isobutylene is nontoxic and safe to use in confined areas. There are no listed exposure levels at any concentration. For more details see Sections 3.5 and 8.2.

f. Alternate means of calibration are possible. For more information, contact HNU Systems, Inc.

3.3 PROBE

a. Identify the lamp by the probe label. If a question exists, disassemble the probe and inspect the lamp. The energy of the lamp is etched into the glass envelope. If the lamp appears to need cleaning, see Section 5.2, UV Lamp and Ion Chamber Cleaning.

CAUTION

The 11.7 eV lamp has NO special cleaning compound, unlike the 9.5 and the 10.2 eV lamps, which do. Do NOT use that compound with the 11.7 eV lamp; it will damage the crystal window and void the warranty. Do

NOT use water or any other water soluble cleaning compound with the 11.7 eV lamp. Do not interchange ion chambers, amplifier boards or lamps between probes. (See Section 5.2 for lamp cleaning instructions).

b. Connect the probe to the readout assembly.

c. Set the SPAN pot to the proper value for the probe being calibrated. Refer to the calibration memo accompanying the probe.

d. Check the Ionization Potential (IP) of the calibration gas to be used. The IP of the calibration gas must be at or below the IP of the lamp.

e. Proceed with the calibration as described in Section 3.4. Check the calibration memo for specific data. If any questions develop, call an HNU representative.

3.4 PROCEDURE

a. Battery check - With the probe attached, turn the function switch to BATT. The needle should be in the green region. If not, recharge the battery.

b. Zero set - With the probe attached, turn the function switch to STANDBY. In this position the lamp is OFF and no signal is generated. Set the zero point with the ZERO set control. The zero can also be set with the function switch on the x1 position and using a "Hydrocarbon-free" air (check the gas manufacturer's specifications; some products contain some nitrogen carbide (NC)). In this case negative readings are possible if the analyzer measures a cleaner sample when in service.

c. 0-20 or 0-200 range - For calibrating on the 0-20 or 0-200 range only one gas standard is required. Turn the function switch to the range position and note the meter reading. Adjust the SPAN control setting as required to read the ppm concentration of the standard. Recheck the zero setting (step b.). If readjustment is needed, repeat step c. This gives a two-point calibration; zero and the gas standard point. Additional calibration points can be generated by dilution of the standard with zero air if desired (see Section 8).

d. 0-2000 range - For calibrating on the 0-2000 range, use of two standards is recommended as cited in Section 3.2a. First calibrate with the higher standard using the SPAN control for setting. Then calibrate with the lower standard using the ZERO adjustment. Repeat these several times to ensure that a good calibration

is obtained. The analyzer will be approximately linear to better than 600 ppm (see Figure 3-2). If the analyzer is to be used subsequently on the 0-20 or 0-200 range, it must be recalibrated as described in steps b. and c. above.

e. Lamp cleaning - If the span setting resulting from calibration is 0.0 or if calibration cannot be achieved, then the lamp must be cleaned (see Section 5.2).

f. Lamp replacement - If the lamp output is too low or if the lamp has failed, it must be replaced (see Section 5.3).

3.5 CALIBRATION CHECKING

Rapid calibration checking in the field can be accomplished by use of a small disposable cylinder containing isobutylene. Immediately after a calibration has been completed, a reading is taken on a special isobutylene standard. This provides a reference concentration measurement for later checking in the field. This can be done at any time with a portable cylinder containing this same special standard, using this reference reading as a check, and making adjustments to the analyzer if necessary. In effect, this is an indirect method of checking calibration, one maintaining the calibration to give direct readings for the original gas mixture, but using the portable isobutylene cylinder. Details are given in Section 0.2 of the Appendix.

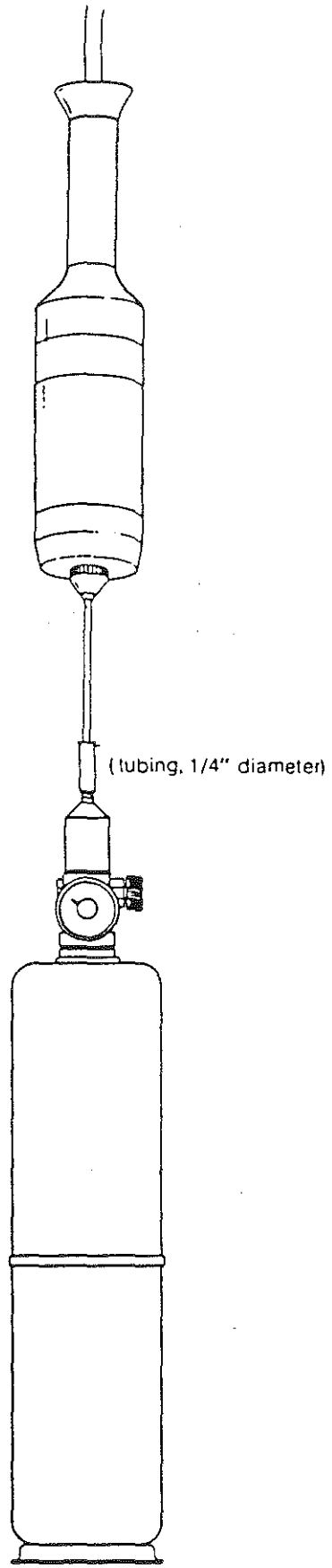


FIGURE 3-2
PRESET FLOW CALIBRATION SET UP

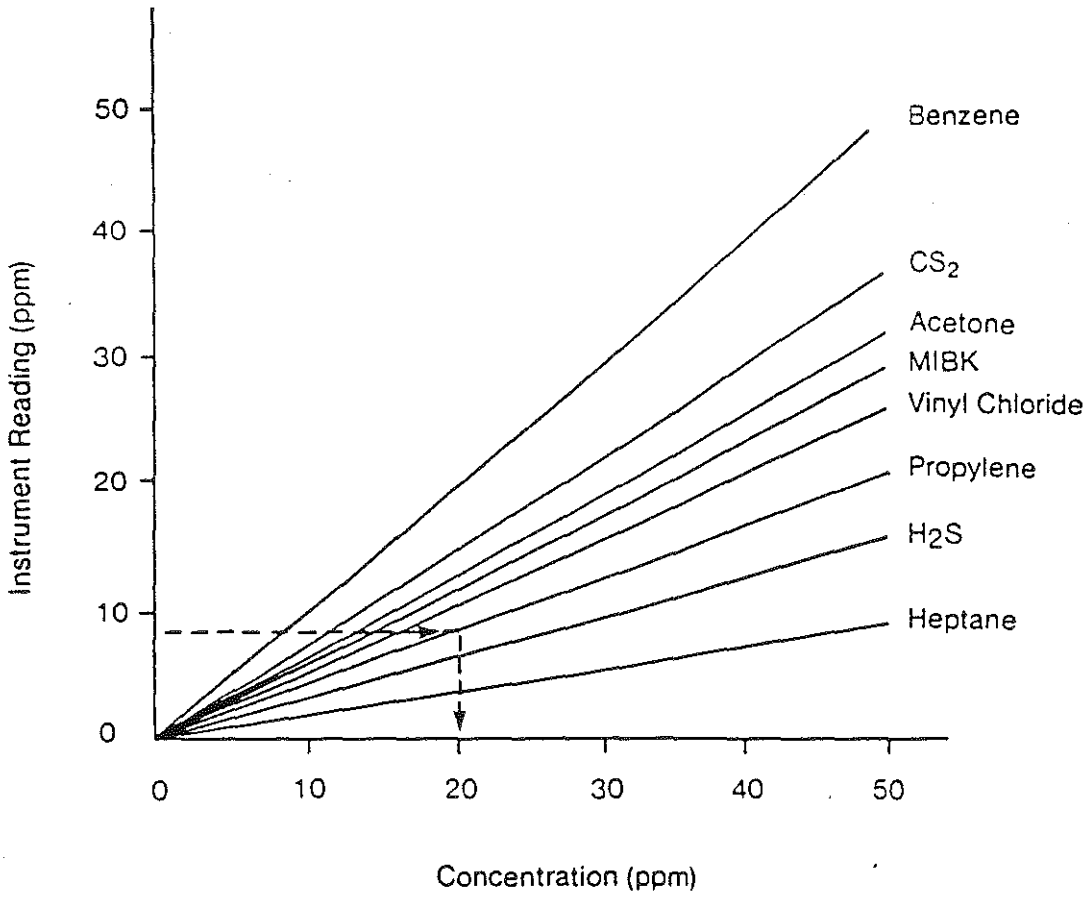


FIGURE 8-2
TYPICAL OUTPUT CURVES –
ANALYZER WITH 10.2 eV LAMP
CALIBRATED FOR BENZENE

TABLE 8-14

RELATIVE PHOTOIONIZATION SENSITIVITIES OF VARIOUS GASES TO A 10.2 eV LAMP

Gas	Photoionization Sensitivity (see Note 1)	Span Control Setting for Direct reading (approximate)
p-xylene	11.4	
m-xylene	11.2	
benzene	10.0 (reference standard)	9.8
toluene	10.0	
diethyl sulfide	10.0	
diethyl amine	9.9	
styrene	9.7	
trichloroethylene	8.9	8.2
carbon disulfide	7.1	
isobutylene	~~5.5~~ 5.5	
acetone	6.3	
tetrahydrofuran	6.0	5.5
methyl ethyl ketone	5.7	
methyl isobutyl ketone	5.7	
cyclohexanone	5.1	
naptha (85% aromatics)	5.0	
vinyl chloride	5.0	4.3
methyl isocyanate	4.5	
iodine	4.5	
methyl mercaptan	4.3	

dimethyl sulfide	4.3	
allyl alcohol	4.2	
propylene	4.0	3.5
mineral spirits	4.0	
2, 3-dichloropropene	4.0	
cycloexene	3.4	
crotonaldehyde	3.1	
acrolein	3.1	
methyl methacrylate	3.0	2.4
pyridine	3.0	
hydrogen sulfide	2.8	
ethylene dibromide	2.7	1.9
n-octane	2.5	
acetaldehyde oxime	2.3	
hexane	2.2	
phosphine	2.0	
heptane	1.7	
allyl chloride (3-chloropropene)	1.5	
ethylene	1.0	
isopropanol	1.0	0.1
ethylene oxide	1.0	
acetic anhydride	1.0	
alpha pinene	0.7	
dibromochloropropane	0.7	

epichlorohydrin	0.7
nitric oxide	0.6
beta pinene	0.5
citral	0.5
ammonia	0.3
acetic acid	0.1
nitrogen dioxide	0.02
methane	0.0
acetylene	0.0

NOTE 1: PPM reading when measuring 10.0 ppm of particular gas with monitor calibrated for benzene.

pace laboratories, inc.
PROFESSIONAL ANALYTICAL CHEMISTRY & ENGINEERING

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa

1710 Douglas Drive North □ Minneapolis, MN 55422 □ Phone (612) 544-5543 □ FAX (612) 544-3974

May 17, 1989

Mr. Kevin Veach
Permit and Review Unit
Hazardous Waste Section
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Mr. Allen Debus
U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, IL 60604

Re: Proposed Sampling Work Plan; Addendum #1;
WCI Freezer Division; St. Cloud, Minnesota

Gentlemen:

I am writing to clarify various items discussed during a telephone conversation with Mr. Veach on May 16, 1989.

The items discussed were as follows:

1. You desire confirmation that a three inch split spoon will be used during the soil boring activities. A three inch split spoon will be used.

2. You desire field quality assurance information concerning PACE's standard chain of custody procedures, bottle and bailer preparation procedures and our field filtration procedures. A copy of our Groundwater Monitoring Field Quality Assurance Manual is enclosed for your records.

3. You desire documentation of our laboratory quality assurance procedures. A copy of PACE's current Quality Assurance Plan is enclosed for your records.

4. You desire a description of the steps and timing for well development activities. The wells are scheduled for installation during the first half of the week beginning June 4, 1989. Braun Engineering Testing, Inc. will develop the wells on June 9, 1989 by jetting and pumping as needed to provide nearly sediment-free water. The wells will be allowed to stabilize over the following week and we anticipate sampling the wells on June 19 or 20, 1989.

5. You desire clarification that HNU meter screening will be provided on the background soil boring. The samples will be so screened and two samples with the highest readings will be submitted to the laboratory for volatile organic compound (VOC) analyses (EPA SW 846 Method 8240). Soil from samples having lower organic screening concentrations than the two highest readings will, upon request, be properly preserved and made available to the MPCA and/or the U.S. EPA for additional VOC analyses.

Please contact me if you have any questions about the items above.

Sincerely,

Daniel A. Comeau

Daniel A. Comeau
Environmental Scientist

DAC222/mc

Enclosures

cc: Richard B. Clute, WCI
Dale Stephenson, Esq., Squire,
Sanders & Dempsey

V. SAMPLING VISIT DESCRIPTION

A. Soil Sampling Visit Description

Soil samples were collected from the five locations shown on the site map included in the Pace Laboratories sampling plan in order to determine whether hazardous constituents had been released to the environment from the outdoor storage area or the former wastewater lagoon. Soil sampling for WCI was performed by Pace Laboratories representatives Dan Comeau and Jim Postiglione. Split samples were collected by Kevin Veach, Joe Julik, or Dan Card of the MPCA. The drilling and split spoon equipment was operated by Braun Engineering. Sampling was conducted on June 5,7 and 8, 1989.

All sample bottles and labels used by the MPCA were provided by the U.S. EPA Contract Laboratory Program (CLP) as well as all paperwork used, including tags, traffic reports, and chain of custody forms. The following samples were sent for analysis by the MPCA staff: 1) five background samples for volatiles and five background samples for Routine Analytical Services metals; 2) five volatiles samples and five RAS metals samples from each of the two borings into the former lagoon area; 3) five volatiles samples from each of the two borings in the outdoor empty container storage area. Sample duplicates and spike samples were collected as required by the CLP. Sample preservation, labeling and shipping was done according to CLP protocol. Samples for organic analysis were sent to Gulf South Environmental Laboratory in New Orleans, Louisiana and samples for inorganic analysis were sent to Keystone Environmental Resources in Monroeville, Pennsylvania. Copies of the field notes, sample tracking forms and the chain of custody forms are included as Appendix 2 to this report.

V. B. Ground Water Sampling Visit Description

This section contains the summary text of the report by Metcalf and Eddy, Inc. on their ground water sampling activities of August 23, 1989. The complete report is included as Appendix 3 to this RFA report.

SECTION 2

SITE CONDITIONS

The WCI Freezer Facility, a division of Franklin Manufacturing Company, is located in St. Cloud, Minnesota. The facility manufactures freezers.

In 1980, a RCRA Part A notification as a hazardous waste facility was submitted and retracted the same year by the owner/operator. The MPCA determined the facility was a hazardous waste storage facility and granted interim status. Currently, there exist active and inactive units on site.

The empty drum storage area is a solid waste management unit (SWMU) where empty drums were stored over an unpaved soil area. Overturned 55-gallon drums and leaking, rusted containers may have released hazardous constituents. The former wastewater lagoon was operated from 1965-1979. This lagoon accepted waste bonderite, a "soapy" degreasing material, and chromium-containing washwater from paint spray booths. The lagoon was closed in 1979.

Two monitoring wells were installed downgradient of the wastewater lagoon. The third well (upgradient) was constructed in an open field on the SW corner of the site. The wells were installed to determine whether hazardous constituents have been released to the groundwater.

During the sampling visit, temperatures were in the mid-to-high 80's, with clear skies and light to moderate east winds.

SECTION 3

SUMMARY OF SAMPLING VISIT

3.1 Summary of Samples Collected

Sampling activities at the WCI site commenced at 0930 on August 23, 1989. A total of 5 groundwater samples were collected, consistent with the amount specified in the EPA sampling plan. None of the groundwater samples collected exhibited unusual odor or discoloration, however, they were quite silty, especially S01 and S03. Analysis requested for all samples was volatile organic analysis and total metals.

All sample bottles and labels were provided by the U.S. EPA Contract Laboratory Program (CLP) as well as all paperwork used, incuding tags, traffic reports, and chain of custody forms. Latex disposable gloves were used and deemed to be non-hazardous and were disposed of off-site in plastic garbage bags, along with some nalgene filters and other paper products.

Prior to sample collection, water levels were measured and the volume of water in each well was calculated. Three times this volume was removed from each well and placed in 55-gallon drums. Three water samples, S01, S02, and S03, came from monitoring wells one, two, and three, respectively. Sample S04 was a duplicate of S03 and sample S05 was a field blank. For a more detailed explanation of actual sampling locations, see Figure 1.

Sampling was conducted with dedicated bailers by Terry Borgering from Pace Laboratories. He then split the samples with M&E representative Ken Krueger.

Metal samples for S01 and S02 were filtered by Mr. Borgering with a master flex pump. Mr. Borgering filter did not operate properly after he filtered his sample from S03. Consequently Ken Krueger used M&E's Nalgene filter for samples S03 and S04.

3.2 Conclusions

The sampling visit was completed at 1330 hours. The samples were carefully packed in a total of two coolers. All appropriate CLP documentation was enclosed, and custody seals placed on the outside. The coolers were shipped via Federal Express on August 23, 1989 at approximately 1700 hours. The SMO was notified the next day. The organics (one cooler) were shipped

to Gulf South in New Orleans, LA (Attn: Cindy Palazzo) and the inorganics (one cooler) to Skinner and Sherman, Inc. in Waltham, MA (Attn: Marilyn Fonseca).

VI. A. SOIL SAMPLING RESULTS

VI. B. GROUND WATER SAMPLING RESULTS

VII. CONCLUSIONS

A. Soil

Among the volatile organic compounds methylene chloride, acetone, and 2-butenone were found at low levels (usually below the quantification limits) in most of the soil samples. Since these compounds were also found at the same levels in the background samples and the levels were consistent from sample to sample it is reasonable to assume that the detections were due to laboratory contamination. The highest level quantified was 37 ug/kg of 2-butenone in sample EEB 51. This level in not environmentally significant. Therefore, no further investigation is necessary at this time for soil volatiles.

Analysis for Routine Analytical Services inorganics showed that concentrations of Extraction Procedure (EP) toxic metals in the soil samples were not above site background levels or above naturally occurring levels. No further investigation is necessary at this time for these compounds.

B. Ground Water

Methylene chloride was quantified in the upgradient well at 6 ug/l and was detected in the method blanks. The conclusion of the EPA regional laboratory is that this is attributable to laboratory contamination. No other volatile compounds were detected in the ground water samples.

Arsenic was quantified at 11.8 ug/l in well 2 and found below the detection limit of 8.3 ug/l in well 3. These levels are well below the drinking water standard of 50 ug/l. Arsenic has not been associated with any of the hazardous waste activities at the site. No other EP toxic metal was detected in any of the wells. It is concluded that no further investigation is necessary at this time for volatiles or inorganics in the ground water.

Appendix 1

MPCA Sampling Plan

SAMPLING PLAN WCI FREEZER DIVISION - ST. CLOUD MINNESOTA

SAMPLING - OBJECTIVE:

In October 1986 a Visual Site Inspection (VSI) was conducted at the WCI facility in St. Cloud as part of the RCRA Facility Assessment (RFA) of the site. The RFA report concluded that two solid waste management units merited further investigation to determine whether releases of hazardous constituents had contaminated soil or groundwater. These two areas are the empty container storage area south of the paint building and the former wastewater lagoon on the west side of the WCI property. Soil samples will be taken at both of these units and monitoring wells will be installed and groundwater samples taken near the former lagoon. One boring will be place on an uncontaminated part of the site and used to determine background levels of toxic metals.

EMPTY CONTAINER STORAGE AREA:

Site Description: The empty drum storage area extends for about 70 feet outside and along the south wall of the paint system building. Empty 55-gallon drums are stored here prior to shipment back to the chemical supplier. The drums have been stored on their sides on the open ground with no container system. If there have been releases of drum residues the potential exists for soil and groundwater contamination.

Sampling locations: Two soil borings will be made equidistant from the ends of the storage area. The exact boring locations will be determined in the field.

Sampling Methods: Soil sampling will be done in accordance with ASTM: D 1586-84, using a 3 inch I.D. split spoon sampler driven into the soil with a 140 lb. weight falling 30 inches. Borings will be drilled to a depth of 20 feet. The soil shall be classified according to ASTM: D2488. Soil boring logs shall be completed which indicate the depth and classification of the soil strata, the $\underline{N}$ value of the soil, water level in the bore hole, the results of the head space analysis, and other relevent information regarding the boring or classification process. Samples shall be collected at 2 1/2 foot intervals with one portion placed in a container for laboratory possible analysis and a another portion placed in a container for field evaluation by the headspace method.

Analysis Parameters: A field evaluation of soils will be done for volatile organics using the head space analysis. Samples of soils will be collected every 2 1/2 feet and approximately 100 grams of soil will be sealed in 12 ounce jars, sealed with Saran wrap or teflon, allowing adequate air space for collection of volatiles. The soil will be broken up and the sample placed in a warm location for several minutes. A field air-monitoring instrument such as an HNU or an OVA shall be used to detect the presence of volatile organics in each sample. Based on the results of the head space analysis, 5 samples from each boring shall be selected for laboratory analysis. The samples will undergo extraction and laboratory analysis for volatile organics in each sample. Based on the results of the head space analysis, 5 samples from each boring shall be selected for laboratory analysis. The samples will undergo extraction and laboratory analysis for volatile organic compounds (VOCs) according to EPA SW 846 methods.

Former Wastewater Lagoon:

Site Description: The unlined lagoon was on the west side of the WCI property and operated friom 1965 to 1979. This lagoon received wastewaters from the #4 paint line and discharge from the Bonderite system. Until 1980 WCI used a lead/chromium based paint and the wastewaters would have contained these contaminants. Various solvents associated with the Bonderite and painting systems would have also been released to the wastewater lagoon. The lagoon bottoms showed contamination with chromium up to 18000 ppm and although some soil was removed it is not known what level of chromium or lead remained in the soil. Because the lagoon was unlined it is likely that the near surface groundwater was contaminated. A warehouse was built over the lagoon site in 1979.

Soil Borings: Four soil borings shall be made around the location of the former lagoon. Two of these borings shall be located on the south side and two shall be located on the west side of the new warehouse addition. The sample shall be collected and analyzed according to the procedures described for the borings in the empty container area with the following exception: each of three of the borings shall also have five (5) samples analyzed for Routine Analytical Services (RAS) total metals. The five samples to be analyzed in each boring shall be selected (based on visual evaluation) from depths below the bottom of the former lagoon.

Monitoring Wells, Purposes and Location: Three groundwater monitoring wells shall be installed around the former lagoon. The purpose for the monitoring wells will be twofold. The wells are to function as detection monitoring wells, primarily to detect the presence of toxic metals, xylene, toluene and methyl ethyl ketone which are the main contaminants which may possibly exist at this site. As two of these suspected contaminants are less dense than water and since the wells will also serve to confirm the direction of the horizontal component of ground water flow, the wells will be installed to intersect the water table.

The attached map has the location of the proposed monitoring wells and also the four (4) borings which are to be installed as part of this investigation, see figure 1.

Groundwater Analysis Parameters: The groundwater samples shall be analyzed for VOCs and RAS total metals according to the procedures in EPA SW 846.

Groundwater Collection Procedures: The samples will be collected by MPCA personnel two weeks after well installation and development. Water table levels will be measured in each well prior to well sampling. Three well volumes of water will be purged from each well and the parameters of temperature, pH, and conductivity will be allowed to stabilize prior to sampling. Well purging and sample collection will be done with a stainless steel or Teflon bailer which is dedicated to that particular well. The bailers and sample containers will be provided and cleaned according to standard procedures by the Minnesota Department of Health and will meet the requirements of the Region V approved QAPP.

Monitoring Well Construction

The three monitoring wells are to be installed with hollow stem augers, with a minimum inside diameter (I.D.), at least 4.25 preferably 6 1/4 inches. The wells will be constructed with 2.0 inch nominal diameter (N.D.) Type 304 stainless steel screens and riser pipes. The screens will have a number 10 slot and an appropriately sized filter pack extending two feet above the screen. The well screens will be ten feet long. The uppermost 2 feet will be above the water table.

6 inches of very fine "flour sand" shall be placed above the filter pack. Above this two (2) feet of 100% bentonite pellets shall be placed, wetted, and alowed to hydrate 30 minutes before continuing the installation. (6) inches of very fine sand shall be placed above the bentonite seal and the remainder of the annulus shall be filled with a cement bentonite grout to within three (3) feet of the surface. From three (3) feet below grade to approximately six (6) inches above grade a concrete anchor shall be installed. Set into this concrete anchor shall be a four (4) inch diameter protective casing fitted with a locking cap. The top of the protective casing shall extend approximately one (1) inch above the vented cap of the monitoring well riser pipe. All monitoring well installations must be done in accordance with the Minnesota Dept. of Health's Water Well Construction Code (MN Rule 4735). This may involve the installation of protective posts around the monitoring wells. See figure 2 for a schematic of the well design criteria.

Background Soil Boring

One soil boring shall be taken to a 20 foot depth and sampled as described in the empty container section above. This boring shall be placed in a part of the facility which is presumably uncontaminated by releases of hazardous constituents and will indicate background levels of metals in the soils at the WCI facility. The final location will be selected in the field. Five samples shall be taken at depths which correspond to the depths sampled in the soil borings around the former lagoon and analysed for RAS total metals.

Field Control Samples:

An appropriate number of field blanks will be collected for water samples. One organic sample (specific location to be selected on site) will be collected to be used by the laboratory for a matrix spike and matrix spike duplicate.

Sample Containers:

The sample quantities, preservatives, bottle sizes and types to be used are those designated in the CLP SLOW for routine analytical services. The sample size, container type, preservation methods and holding times are also in Appendix B of the RFA QAPP. Contractor will provide all aforementioned sampling equipment. Sampling jars should be prepared using procedures listed in the Region V approved QAPP, Contractor will provide all aforementioned sampling equipment. ~~sampling equipment~~. Sampling jars should be prepared using procedures listed in the Region V approved QAPP, or if not specified: clean with nonphosphate detergent in tap water; 1:1 nitric acid rinse; 1:1 hydrochloric acid rinse; tap water rinse; and distilled water rinse.

Decontamination of Equipment:

A protocol for decontamination procedures is to be established by the contractor and referenced or added as an attachment.

Recordkeeping:

The location from which each sample is taken will be recorded in the field logbook. Photographs will be used to document sampling sites and to verify written description entered in the field log, including static water depths borehole volumes, soil descriptions, and pertinent colors or odors. Field tracking records, sample analysis request sheets and chain of custody forms will be prepared as described in the RCRA QAPP. All photographs, forms, data, and other project documentation will be placed in the project file and will be submitted to Ms. Pat Vogtman.

Soil Sampling:

A drilling rig will be used to place soil borings and wells. The contractor will bring equipment to penetrate rock and asphalt pavement, in case it is necessary to collect samples from beneath paved areas. Provisions for taking angled borings shall also be made. Between borings, augers are to be decontaminated by procedures suggested in the Region V QAPP. All prospective sampling locations are to be first inspected, to ascertain that natural soil will be sampled. Samples are to be placed in appropriate containers, as mentioned previously and below, as soon as possible after their extraction, and the caps must be securely fastened. Lids are to be taped carefully, and permanent ink is to be used for labels, dates, and the collectors initials. Labeling is to be done at the time fo sample collection. Samples are to be packed and stored according to the approved Region V QAPP.

SAMPLING PLAN WCI FREEZER DIVISION - ST. CLOUD MINNESOTA

SAMPLING - OBJECTIVE:

In October 1986 a Visual Site Inspection (VSI) was conducted at the WCI facility in St. Cloud as part of the RCRA Facility Assessment (RFA) of the site. The RFA report concluded that two solid waste management units merited further investigation to determine whether releases of hazardous constituents had contaminated soil or groundwater. These two areas are the empty container storage area south of the paint building and the former wastewater lagoon on the west side of the WCI property. Soil samples will be taken at both of these units and monitoring wells will be installed and groundwater samples taken near the former lagoon. One boring will be place on an uncontaminated part of the site and used to determine background levels of toxic metals.

EMPTY CONTAINER STORAGE AREA:

Site Description: The empty drum storage area extends for about 70 feet outside and along the south wall of the paint system building. Empty 55-gallon drums are stored here prior to shipment back to the chemical supplier. The drums have been stored on their sides on the open ground with no container system. If there have been releases of drum residues the potential exists for soil and groundwater contamination.

Sampling locations: Two soil borings will be made equidistant from the ends of the storage area. The exact boring locations will be determined in the field.

Sampling Methods: Soil sampling will be done in accordance with ASTM: D 1586-84, using a 3 inch I.D. split spoon sampler driven into the soil with a 140 lb. weight falling 30 inches. Borings will be drilled to a depth of 20 feet. The soil shall be classified according to ASTM: D2488. Soil boring logs shall be completed which indicate the depth and classification of the soil strata, the $\underline{N}$ value of the soil, water level in the bore hole, the results of the head space analysis, and other relevent information regarding the boring or classification process. Samples shall be collected at 2 1/2 foot intervals with one portion placed in a container for laboratory possible analysis and a another portion placed in a container for field evaluation by the headspace method.

Analysis Parameters: A field evaluation of soils will be done for volatile organics using the head space analysis. Samples of soils will be collected every 2 1/2 feet and approximately 100 grams of soil will be sealed in 12 ounce jars, sealed with Saran wrap or teflon, allowing adequate air space for collection of volatiles. The soil will be broken up and the sample placed in a warm location for several minutes. A field air-monitoring instrument such as an HNU or an OVA shall be used to detect the presence of volatile organics in each sample. Based on the results of the head space analysis, 5 samples from each boring shall be selected for laboratory analysis. The samples will undergo extraction and laboratory analysis for volatile organics in each sample. Based on the results of the head space analysis, 5 samples from each boring shall be selected for laboratory analysis. The samples will undergo extraction and laboratory analysis for volatile organic compounds (VOCs) according to EPA SW 846 methods.

Former Wastewater Lagoon:

Site Description: The unlined lagoon was on the west side of the WCI property and operated friom 1965 to 1979. This lagoon received wastewaters from the #4 paint line and discharge from the Bonderite system. Until 1980 WCI used a lead/chromium based paint and the wastewaters would have contained these contaminants. Various solvents associated with the Bonderite and painting systems would have also been released to the wastewater lagoon. The lagoon bottoms showed contamination with chromium up to 18000 ppm and although some soil was removed it is not known what level of chromium or lead remained in the soil. Because the lagoon was unlined it is likely that the near surface groundwater was contaminated. A warehouse was built over the lagoon site in 1979.

Soil Borings: Four soil borings shall be made around the location of the former lagoon. Two of these borings shall be located on the south side and two shall be located on the west side of the new warehouse addition. The sample shall be collected and analyzed according to the procedures described for the borings in the empty container area with the following exception: each of three of the borings shall also have five (5) samples analyzed for Routine Analytical Services (RAS) total metals. The five samples to be analyzed in each boring shall be selected (based on visual evaluation) from depths below the bottom of the former lagoon.

Monitoring Wells, Purposes and Location: Three groundwater monitoring wells shall be installed around the former lagoon. The purpose for the monitoring wells will be twofold. The wells are to function as detection monitoring wells, primarily to detect the presence of toxic metals, xylene, toluene and methyl ethyl ketone which are the main contaminants which may possibly exist at this site. As two of these suspected contaminants are less dense than water and since the wells will also serve to confirm the direction of the horizontal component of ground water flow, the wells will be installed to intersect the water table.

The attached map has the location of the proposed monitoring wells and also the four (4) borings which are to be installed as part of this investigation, see figure 1.

Groundwater Analysis Parameters: The groundwater samples shall be analyzed for VOCs and RAS total metals according to the procedures in EPA SW 846.

Groundwater Collection Procedures: The samples will be collected by MPCA personnel two weeks after well installation and development. Water table levels will be measured in each well prior to well sampling. Three well volumes of water will be purged from each well and the parameters of temperature, pH, and conductivity will be allowed to stabilize prior to sampling. Well purging and sample collection will be done with a stainless steel or Teflon bailer which is dedicated to that particular well. The bailers and sample containers will be provided and cleaned according to standard procedures by the Minnesota Department of Health and will meet the requirements of the Region V approved QAPP.

Monitoring Well Construction

The three monitoring wells are to be installed with hollow stem augers, with a minimum inside diameter (I.D.), at least 4.25 preferably 6 1/4 inches. The wells will be constructed with 2.0 inch nominal diameter (N.D.) Type 304 stainless steel screens and riser pipes. The screens will have a number 10 slot and an appropriately sized filter pack extending two feet above the screen. The well screens will be ten feet long. The uppermost 2 feet will be above the water table.

6 inches of very fine "flour sand" shall be placed above the filter pack. Above this two (2) feet of 100% bentonite pellets shall be placed, wetted, and alowed to hydrate 30 minutes before continuing the installation. (6) inches of very fine sand shall be placed above the bentonite seal and the remainder of the annulus shall be filled with a cement bentonite grout to within three (3) feet of the surface. From three (3) feet below grade to approximately six (6) inches above grade a concrete anchor shall be installed. Set into this concrete anchor shall be a four (4) inch diameter protective casing fitted with a locking cap. The top of the protective casing shall extend approximately one (1) inch above the vented cap of the monitoring well riser pipe. All monitoring well installations must be done in accordance with the Minnesota Dept. of Health's Water Well Construction Code (MN Rule 4735). This may involve the installation of protective posts around the monitoring wells. See figure 2 for a schematic of the well design criteria.

Background Soil Boring

One soil boring shall be taken to a 20 foot depth and sampled as described in the empty container section above. This boring shall be placed in a part of the facility which is presumably uncontaminated by releases of hazardous constituents and will indicate background levels of metals in the soils at the WCI facility. The final location will be selected in the field. Five samples shall be taken at depths which correspond to the depths sampled in the soil borings around the former lagoon and analysed for RAS total metals.

Field Control Samples:

An appropriate number of field blanks will be collected for water samples. One organic sample (specific location to be selected on site) will be collected to be used by the laboratory for a matrix spike and matrix spike duplicate.

Sample Containers:

The sample quantities, preservatives, bottle sizes and types to be used are those designated in the CLP SLOW for routine analytical services. The sample size, container type, preservation methods and holding times are also in Appendix B of the RFA QAPP. Contractor will provide all aforementioned sampling equipment. Sampling jars should be prepared using procedures listed in the Region V approved QAPP, Contractor will provide all aforementioned sampling equipment. ~~sampling equipment~~. Sampling jars should be prepared using procedures listed in the Region V approved QAPP, or if not specified: clean with nonphosphate detergent in tap water; 1:1 nitric acid rinse; 1:1 hydrochloric acid rinse; tap water rinse; and distilled water rinse.

Decontamination of Equipment:

A protocol for decontamination procedures is to be established by the contractor and referenced or added as an attachment.

Recordkeeping:

The location from which each sample is taken will be recorded in the field logbook. Photographs will be used to document sampling sites and to verify written description entered in the field log, including static water depths borehole volumes, soil descriptions, and pertinent colors or odors. Field tracking records, sample analysis request sheets and chain of custody forms will be prepared as described in the RCRA QAPP. All photographs, forms, data, and other project documentation will be placed in the project file and will be submitted to Ms. Pat Vogtman.

Soil Sampling:

A drilling rig will be used to place soil borings and wells. The contractor will bring equipment to penetrate rock and asphalt pavement, in case it is necessary to collect samples from beneath paved areas. Provisions for taking angled borings shall also be made. Between borings, augers are to be decontaminated by procedures suggested in the Region V QAPP. All prospective sampling locations are to be first inspected, to ascertain that natural soil will be sampled. Samples are to be placed in appropriate containers, as mentioned previously and below, as soon as possible after their extraction, and the caps must be securely fastened. Lids are to be taped carefully, and permanent ink is to be used for labels, dates, and the collectors initials. Labeling is to be done at the time fo sample collection. Samples are to be packed and stored according to the approved Region V QAPP.

Appendix 2

Soil Sampling Field Notes and Chain of Custody

WCI Freezer Division ①
RFA Sampling 6/5/89
Field Notes Soil Sampling

MPCA representatives
Kevin Veach
Joe Julik

WCI rep.: Dick Clute
Pace reps: Dan Comeau
Jim Postiglione
Braun reps:

Weather: light clouds
winds: westerly 8-15 mph
temp. 24°C

Boring B-1 background location
location: 109 ft (center) west of chain link fence
117' north of (west face) of street light base

time 10:22

S01 $\frac{1}{2}$-3 black organic to brown sandy (SM)

S02 ~~4~~-5$\frac{1}{2}$ brown sandy little sample due to cobble 1039

★S03 6$\frac{1}{2}$-8' brown sand to moist clean coarse sand in last 24 time 1048

★S04 9-10$\frac{1}{2}$ mixed sand and cobbles saturated 1100

S05 11$\frac{1}{2}$-13 well-graded saturated sand and gravel. 1124. decided to omit HNu

HNu on 1$\frac{1}{2}$-3' 24 ppm Pace instrument

S06

★14-15$\frac{1}{2}$' 1137 brown well graded sand, saturated

Decision made to allow natural sand pack

S07

16$\frac{1}{2}$-18 1147 brown, graded, saturated coarse sand with gravel

S08

★19-20$\frac{1}{2}$ 1202 brown, well graded saturated sand

HNu

4' - 5½'	10.2
6½' - 8'	17.6
[illegible]	[illegible]
14½' - 15½'	22
16½' - 18'	24
19' - 20'	160

Chose location for B-5 170' west of southeast edge new warehouse and 8' south out to roughly correspond to previous Braun boring ST23

Location of B-4 was 120' south of the N.W corner of the new warehouse ½ way between ST13 and ST14

Verified location of one well next to N.E corner of new warehouse

Verified location of the other downgradient well and got the drilling crew set in the area

Photos:

#8 background boring location B-1

#9 well drilling for upgradient well

#10 completed background well

#11 open cooler filled w samples

12 closed front of sealed cooler

13 closed rear seal of cooler

(5)

Sampling Visit 6-7-89
MPCA - Kevin Veach
Dan Card
Pace : Eric Forgaard
Braun : Mark Thielman
Bill Donahue

Time 943
Weather Partly cloudy, 28°C
wind 5-15mph from west

Photo 14 B-2 location
15 B-2 closeup

Location west 1/3 of the empty container storage area (Pace Labs location B-4)

* S09 959 0-1½. brown silty sand

* S10 1011 1½-3 mixed sandy fill w/ silt

S11 1026 4-5½ sandy fill to sandy till in last 3"

* S-12 1045 6½-8 brown sandy till to light brown sand w gravel in last 6"

1050 temp 30°C HNu 1.5-3' reading 0
4-5.5' reading 0

* S-13 1056 9-10½ brown silty-sandy till w/ cobbles

S14 1175 split spoon got stock only advanced 4" 1 VOA container collected from this increment. ~~re-attempted with narrower split spoon~~
11½-13 not enough collected so auger was advanced to 13 ft

* S-15 13-14½ 1148 grey till with cobbles very hard dense

S-16 15½-17 1210 grey till, hard
very little sample collected

Boring location B-3 (B-5 for Pace)
East ⅓ of the empty container storage area

1334
* S-17 1½-3 - 4"-2' sand w/gravel 2-3 silty dark sand

S-18 1345 well sorted sand with SW-SM
sandy silt in ~~first~~ 8" 4-5½

* S-19 1357 6½"-8 well sorted sand w gravel

* S-20 1405 9-10½ " " " " "

S-21 1415 1½-13 well sorted brn. sand to hard
silty sand in last 1 ft

* S-22 1430 14-15½ hard grey silty sand

S-23 1445 16½-18 " " " "
no metals sampled; Very little sample avail

* S-24 1458 19-20½ hard grey silty sand
no metals sampled some sand pocket with green pigment

- Quest? How much asphalt was bored through
  How ~~deep~~ depressed was the sfc of the asphalt
  compared to the 'normal' grnd. sfc?
  4" bituminous
  1'. decrease in elevation to sfc. at ramp

6/8 Time 9:49 Temp 54°F
overcast light drizzle
wind from North 0-5mph
Sampling location B-4 West side of W'house

- P 525 1000 9'-10½'
  HNu background ~ 3½ due to drilling rig
  rezeroed the HNu
  mixed sand & silt fill with black
  crumbly tar-like substance

S-2C 1010 11½-13 mixed fill with
cobbles & stones

S27 10:25 14-15½ trace silty sand w/ org matter saturated transition from fill to lagoon bottom

5-28 1045 16½-18 well sorted sand w/ cobbles organic smell grades to fine sand w/ silt

5-29 1100 19-20½ well sorted sand w/ cobbles faint org. smell transition to till in last 4"

5-30 1110 20½-22 hard grey till silty fine sand

Photo 18 looking east at boring 4
Photo 19 looking northeast at " "
and corner of warehouse

Location B5 South of Warehouse in front of Dock 11

S-31 1330 well sorted sand & cobbles 6½-8

S-32 1340 Br F-Co S. w/ Cobbles 9-10½

☆ S-33 1350 11½-13 brn. fine sand transition to well sorted sand lagoon bottom in last 1' grey w/ organic odor

☆ S-34 1405 14-15½ well sorted grey sand w/ gravel & cobbles V. little sample. ~~no~~ metals sampled

☆ S-35 1415 16½-18 grey well sorted sand w/ gravel to fine sand w trace silt natural organic odor

☆ S-36 1430 19-20½ grey fine sand ~~with~~ trace gravel natural some organic odor

(11)

S-37 21½-23 1440 well sorted
grey med. sand, with gravel, saturated

S-38 24-25½ 1455 well sorted
grey coarse sand, saturated

HNu readings

B-4 9-10.5 ○
19-20½ ○

B-5 16.5-18 1
19-20.5 1.5
24-25.5 2.5

MPCA SAMPLE TRACKING FORM

Sheet 1 of 2

Site Name WCI Freezer Division
Date 6/5/89
Project Manager Kevin Veach
Technical Assistant Joe Julik
Sample Coordinator

SAS Laboratory:
Organic Contract Laboratory: Gulf South
Inorganic Contract Laboratory: Keystone Env. Resa
Shipping Date: 6-5-89
Custody Seals: 96526 96527

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
S01	B-1 1½-3'	Soil	10:25	6/5	metals	MEE200	89YV01	035490	
S01	B-1 1½-3'	Soil	10:25	6/5	VOA	EEB37	89YV01	03549/	
S01	B-1 1½-3'	Soil	1028	6/5	VOA	EEB 37	"	035492	
S02	B-1 4-5½	Soil	1039	6/5	metals	MEE201	"	035493	
S02	B-1 4-5½	"	1039	6/5	VOA	EEB 38	"	035494	
S02	B-1 4-5½	"	1039	6/5	VOA	EEB 38	"	035495	
S03	B-1 6½-8	"	1048	6/5	metals	MEE202	"	035496	
S03	B-1 6½-8	"	1048	6/5	VOA	EEB 39	"	035497	
S03	B-1 6½-8	"	1048	6/5	VOA	EEB 39	"	035498	
S04	B-1 9-10½	"	1100	6/5	metals	MEE203	"	035499	
S04	B-1 9-10½	"	1100	6/5	VOA	EEB 40	"	035500	
S04	B1 9-10½	"	1100	6/5	VOA	EEB 40	"	035501	

MPCA SAMPLE TRACKING FORM

Sheet 2 of 2

Site Name _____
Date _____
Project Manager _____
Technical Assistant _____
Sample Coordinator _____

SAS Laboratory: _____
Organic Contract Laboratory: _____
Inorganic Contract Laboratory: _____
Shipping Date: _____
Custody Seals: _____

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
505	B1, 11½-13	soil	1124	6/5	metals	MEEZ04		035502	
505	B1, 11½-13	soil	1124	6/5	VOA	EEB 41		035503	
505	B1/11½-13	"	"	6/5	VOA	EEB 41		035504	
506	B1/14-15½	"	1137	6/5	metals	MEEZ05		035505	
506	B1/14/15½	"	"	"	VOA	EEB 42		035506	
506	B1/14-15½	"	"	"	VOA	EEB 42		035507	
507	B1/16½-18	soil	1147	"	metals	MEEZ06		035508	
507	B1/16½-18	"	1147	"	VOA	EEB 43		035509	
507	B1/16½-18	"	1147	"	VOA	EEB 43		035510	
508	B1/19-20	soil	1202	"	metals	MEEZ07		035511	
508	B1/19-20	"	1202	"	VOA	EEB 44		035512	
508	B1/19-20	"	1202	"	VOA	EEB 44		035513	

MPCA SAMPLE TRACKING FORM

Sheet 1 of 4

Site Name WCI Freezer
Date 6/7/89
Project Manager Kevin Veach
Technical Assistant Dan Card
Sample Coordinator

SAS Laboratory:
Organic Contract Laboratory: Gulf South Env.
Inorganic Contract Laboratory: Keystone Env. Re
Shipping Date: 6/9/89
Custody Seals:

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
X S09	B2 0'-1½'	soil	9:59	6/7	metals	MEE208	89YV01	035514	F8236104
S09	B2 0'-1½'	"	959	6/7	VOA	EEB45		035515	D8159184
S09	B2 0'-1½'	"	959	6/7	VOA	EEB45		035516	D8159184
S10	B2 1½'-3'	soil	1011	6/7	metals	MEE209		035519	
S10	B2 1½'-3'	"	1011		VOA	EEB46		035518	
S10	B2 1½'-3'	"	1011		VOA	EEB46		035517	
S11	B2 4'-5½'	soil	1026		metals	MEE210		035522	
S11	B2 4'-5½'	"	1026		VOA	EEB47		035521	
S11	B2 4'-5½'	"	1026		VOA	EEB47		035520	
S12	B2 6½'/8'	soil	1045		metals	MEE211		035523	
S12	B2 6½'/8'	"	1045		VOA	EEB48 ~~MEE211~~		035524	
S12	B2 6½'/8'	"	1045		VOA	EEB48	↓	035525	

MPCA SAMPLE TRACKING FORM

Sheet 2 of 4

Site Name WCI Freezer
Date 6/7/89
Project Manager Kevin Veach
Technical Assistant Dan Card
Sample Coordinator

SAS Laboratory:
Organic Contract Laboratory: Gulf South Env.
Inorganic Contract Laboratory: Keystone Env. Res.
Shipping Date: 6/9/89
Custody Seals:

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
S13	B2 9'-10½'	soil	1056	6/7/89	metals	MEEZ 12	89YV01	035526	
S13	B2 9'-10½'		1056	6/7/89	VOA	EEB 49		035527	
S13	B2 9'-10½'		1056	6/7/89	VOA	EEB 49		035528	
S14	B2 11½-13		1115	6/7/89	metals	MEEZ 13		035529	
S14	B2 11½-13		1115	6/7/89	VOA	EEB 50		035530	
S14	B2 11½-13		1115	6/7/89	VOA	EEB 50		035531	
S15	B2 13-14½		1148	6/7/89	metals	MEEZ 14		035532	
S15	B-2 13-14½		1148	6/7/89	VOA	EEB 51		035533	
S15	B2 13-14½		1148	6/7/89	VOA	EEB 51		035534	
S16	B-2 15½-17		1210	6/7/89	metals	MEEZ 15		035535	
S16	B-2 15½-17		1210	6/7/89	VOA	EEB 52 ~~MEEZ 1~~		035536	
S16	B-2 15½-17		1210	6/7/89	VOA	EEB 52		035537	

MPCA SAMPLE TRACKING FORM

Sheet 3 of 4

Site Name INCI Freezer
Date 6/7/89
Project Manager Kevin Veach
Technical Assistant Dan Card
Sample Coordinator

SAS Laboratory:
Organic Contract Laboratory: Gulf South Env. Lab
Inorganic Contract Laboratory: Keystone Env. R
Shipping Date: 6/9/89
Custody Seals:

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
S17	B3 4½-3	soil	1334	6/7	metal	Meez 16	89YV01	035538	
S17	" "		1334	6/7	VOA	EEB 53		035539	
S17	" "		1334	6/7	VOA	EEB 53		035540	
S18	B3 4'-5½'		1345		metal	Meez 17		035541	
S18	" "		1345		VOA	EEB 54		035542	
S18	" "		1345		VOA	EEB 54		035543	
* S19	B-3 6½'-8'		1357		metal	Meez 18		035544	
S19	" "		1357		VOA	EEB 55		035545	
S19	" "		1357		VOA	EEB 55		035546	
* S20	B-3 9-10½'		1405		metal	Meez 19		035547	
* S20	" "		1405		VOA	EEB 56		035548	
* S20		↓	1405		VOA	EEB 56	↓	035549	

20 50 51 52 21 53 54 55 22 56 57 58 23 59 60 61 24 62

MPCA SAMPLE TRACKING FORM

Sheet 4 of 4

Site Name WCI Freezer
Date 6/7/89
Project Manager Kevin Veach
Technical Assistant Dan Card
Sample Coordinator

SAS Laboratory:
Organic Contract Laboratory: Gulf South Env. Lab
Inorganic Contract Laboratory: Keystone Env. R
Shipping Date: 6/9/89
Custody Seals:

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
S21	B-3 11½-13	Soil	1415	6-7	metal	Meez 20	89VV01	035550	
S21	" "		"		VOA	EEB57		035551	
S21	" "		"		VOA	EEB57		035552	
*S22	B-3 14-15½		1430		metal	Meez 21		035553	
*S22	" "		"		VOA	EEB58		035554	
*S22	" "		"		VOA	EEB58		035555	
~~S23~~	~~B-3 16½-18~~		~~1445~~ not collected		~~metal~~	~~Meez 22~~		~~035556~~	
S23	" "		"		VOA	EEB59		035557	
S23	" "		"		VOA	EEB59		035558	
~~S24~~	~~B-3 19-20½~~		~~1458~~ not collected		~~metal~~	~~Meez 23~~		~~035559~~	
S24	" "		"		VOA	EEB60		035560	
S24	" "	↓	"	↓	VOA	EEB60	↓	035561	

Tags
JJ Hladt

MPCA SAMPLE TRACKING FORM

Sheet 1 of 4

Site Name WCI Freezer
Date 6/8/89
Project Manager Kevin Vrach
Technical Assistant Joe Juhl
Sample Coordinator

SAS Laboratory:
Organic Contract Laboratory: Gulf South Env. L
Inorganic Contract Laboratory: Keystone Env. Re
Shipping Date: 6/9/89
Custody Seals: inorg 96522 96523
org 96524 96525

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
S25	B4 9-10½	Soil	1000	6/8	metal	Meez 24	87YV01	035562	F8236101
S25			"		VOA	EEB 61		" 563	D8159184
S25			"		VOA	EEB 61		" 564	D8159184
S26	B4 11½-13		1010		metal	Meez 25		" 565	
S26			"		VOA	EEB 62		" 566	
S26			"		VOA	EEB 62		" 567	
S27	B4 14-15½		1025		metal	Meez ~~EEB 6~~ 26		" 568	
S27					VOA	EEB 63		" 569	
S27					VOA	EEB 63		" 570	
S28	B4 16½-18		1045		metal	Meez 27		" 571	
S28					VOA	EEB 64		" 572	
S28					VOA	EEB 64		" 573	

25 - 65
26 - 68

MPCA SAMPLE TRACKING FORM

Sheet 2 of 4

Site Name _____
Date _____
Project Manager _____
Technical Assistant _____
Sample Coordinator _____

SAS Laboratory: _____
Organic Contract Laboratory: _____
Inorganic Contract Laboratory: _____
Shipping Date: _____
Custody Seals: _____

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
529	B-4 9-20½	Soil	1100	6/8	Metals	Meez 28	89YV01	035574	
529					VOA	EEB 65		035575	
529					VOA	EEB 65		035576	
* 530	B-4 20½-22		1110		Metal	Meez 29		035577	
530	B-4				VOA	EEB 66		035578	
530	B-4				VOA	EEB 66		035579	
531	B-5 6½-8		1330		metal	Meez 30		035401	
531					VOA	EEB 67		035402	
531					VOA	EEB 67		035403	
532	B-5 9-10½		1340		Metal	Meez 31		035404	
532						EEB 68		035405	
532						EEB 68		035406	

MPCA SAMPLE TRACKING FORM

Sheet 3 of 4

Site Name _____
Date _____
Project Manager _____
Technical Assistant _____
Sample Coordinator _____

SAS Laboratory: _____
Organic Contract Laboratory: _____
Inorganic Contract Laboratory: _____
Shipping Date: _____
Custody Seals: _____

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
S 33	B-5 11½-13	Soil	1350	6/8	Metal	Meez 32	89VV01	407	
S-33					VOA	EEB 69		408	
S-33					VOA	EEB 69		409	
S-34	B-5 14-15½		1405	6/8	metal	Meez 33 (20 metals)		410	
S-34					VOA	EEB 70		411	
S-34					VOA	EEB 70		412	
S-35	B-5 16½18		1415	6/8	metal	Meez 34		035413	
S-35					VOA	EEB 71		035414	
S-35			1415		VOA	EEB71		035415	
S-36	B-5 19-20½		1430		Metal	Meez 35		035416	
S-36					VOA	EEB 72		035417	
S-36					VOA	EEB72		035418	

MPCA SAMPLE TRACKING FORM

Sheet 4 of 4

Site Name _____
Date _____
Project Manager _____
Technical Assistant _____
Sample Coordinator _____

SAS Laboratory: _____
Organic Contract Laboratory: _____
Inorganic Contract Laboratory: _____
Shipping Date: _____
Custody Seals: _____

Sample Number	Sample Location	Sample Matrix	Time	Date	Designate	Traffic Report Number	CRL Log Number	EPA Tag Number	EPA Bottle Number
S-37	B-5 21½-23	Soil	1440	6/8	Metals	Meez 36		419	
S-37						EEB 73		420	
S-37						EEB 73		421	
S-38	B-5 24-25½		1455	6/8	Metals	Meez 37		422	
S-38					VOA	EEB 74		423	
S-38					VOA	EEB 74		424	

ENVIRONMEN PROTECTION AGENCY
Office of Enforcement

REGI 5
230 South De. orn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

Case Number - 12095

PROJ. NO.	PROJECT NAME
89YV01	ST. Des Moines

SAMPLERS: (Signature) Kevin C Keach

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	120 ML VOA						REMARKS: Corresponding IOTR # / TAG #
EEB38	6/5/89	1039		X	B-1	2	2						MEE201 5-035494, 5-035495
EEB39	6/5/89	1048		X	B-1	2	2						MEE202 5-035497, 5-035498
EEB40	6/5/89	1100		X	B-1	2	2						MEE203 5-035500, 5-035501
EEB42	6/5/89	1137		X	B-1	2	2						MEE205 5-035506, 5-035507
EEB44	6/5/89	1202		X	B-1	2	2						MEE207 5-035512, 5-035513

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Kevin Keach	6/5/89 2115				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Airbill Numbers - 728 592 502 Lab name - Gulf South Environ. Laboratories COC Seals - 96526, 96527	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

05-00830

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
P.O. Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report
(For CLP Use Only)

Case Number	SAS No. (if applicable)
12095	

1. Type of Activity (Check one)
- [ ] ENF [ ] NPLD [ ] RA [ ] SI [ ] STSI
- [ ] ER [ ] O&M [ ] RD [ ] ST [X] Other (Specify)
- [ ] ESI [ ] PA [ ] RIFS [ ] STPA

2. Region Number: 5 | Sampling Co.: MPCA

Sampler (Name): Kevin Veach

4. Date Shipped: | Airbill Number: 728592502

Carrier: Airborn Express

Non-Superfund Program: RCRA RFA

Site Name: WCI Freezer Division

City, State: St. Cloud, MN | Site Spill ID:

3. Ship To: Cindy Palazzo
Gulf South Environmental Laboratories
6801 Press Dr, E. Bldg.
New Orleans, LA 70126

Triple volume required for matrix spike/duplicate aqueous sample.

Ship medium and high concentration samples in paint cans.

See reverse for additional instructions.

5. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (SAS)
7. Waste (SAS)
8. Other (SAS) (Specify)

CLP Sample Number (From labels)	(A) Sample Description (From box 1)	(B) Concentration L=low M=med H=high	(C) RAS Analysis VOA	BNA	Pest/PCB	(D) Special Handling	(E) Station Location	(F) Date/Time of Sample Collection	(G) Corresponding CLP Inorganic Sample Number	
~~EEB37~~	~~5~~	~~L~~	X						MEEZ 00	SAMPLE RETAINED BY MPCA
EEB38	5	L	X						MEEZ 01	
EEB39	5	L	X						MEEZ 02	
EEB40	5	L	X						MEEZ 03	
~~EEB41~~	~~5~~	~~L~~	~~X~~						~~MEEZ 04~~	SAMPLE RETAINED BY MPCA
EEB42	5	L	X						MEEZ 05	
~~EEB43~~	~~5~~	~~L~~	~~X~~						~~MEEZ 06~~	SAMPLE RETAINE BY MPCA
EEB44	5	L	X						MEEZ 07	

EPA Form 9110-2 (8-88) Replaces EPA Form 2075-7, which may be used. Blue - SMO Copy Pink - Region Copy White - Lab Copy for Return to SMO Yellow - Lab Copy

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report
(For CLP Use Only)

Case Number: 12095 | SAS No. (if apr e)

1. Type of Activity (Check one)
ENF, NPLD, RA, SI, STSI
ER, O&M, RD, ST, [X] Other *(Specify)*
ESI, PA, RIFS, STPA

2. Region Number: 5 | Sampling Co.: MPCA

Sampler (Name): Kevin Veach

4. Date Shipped: 6/9/89 | Airbill Number: 250 882 193 293

Carrier: Airborn Express

Non-Superfund Program: RCRA RFA

Site Name: WCL Freezer

City, State: St. Cloud MN | Site Spill ID:

3. Ship To:
Gulf South Env. Lab.
6801 Press Dr, E. Bldg
New Orleans,
LA 70126

Triple volume required for matrix spike/duplicate aqueous sample.

Ship medium and high concentration samples in paint cans.

See reverse for additional instructions.

5. Sample Description *(Enter in Column A)*
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (SAS)
7. Waste (SAS)
8. Other (SAS) *(Specify)*

CLP Sample Number (From labels)	(A) Sample Description (From box 1)	(B) Concentration L=low M=med H=high	(C) RAS Analysis VOA	BNA	Pest/ PCB	(D) Special Handling	(E) Station Location	(F) Date/Time of Sample Collection	(G) Corresponding CLP Inorganic Sample Number	
EEB45	5	L	X				B2	6/7 959	MEEZ08	
EEB46	5	L	X				B2	6/7 1011	Meez 09	
~~EEB47~~	~~5~~	~~L~~	~~X~~				~~B2~~	~~6/7 1026~~	~~Meez 10~~	Retained by MPCA
EEB 48	5	L	X				B2	6/7 1045	Meez 11	
EEB 49	5	L	X				B2	6/7 1056	Meez 12	
EEB 51	5	L	X				B2	6/7 1148	Meez 14	
~~EEB 52~~	~~5~~	~~L~~	~~X~~				~~B2~~	~~6/7 1210~~	~~Meez 15~~	Retained by MPCA
EEB53	5	L	X				B-3	6/7 1334	Meez 16	
~~EEB54~~	~~5~~	~~L~~	~~X~~				~~B-3~~	~~6/7~~	~~Meez 17~~	Retained by MPCA
EEB55	5	L	X				B-3	6/7 1357	Meez 18	
EEB 56	5	L	X				B-3	6/7 1405	Meez 19	
~~EEB 57~~	~~5~~	~~L~~	~~X~~				~~B-3~~	~~6/7~~	~~Meez 20~~	
EEB58	5	L	X				B-3	6/7 1430	Meez 21	
~~EEB59~~	~~5~~	~~L~~	~~X~~				~~B-3~~	~~6/7~~	~~Meez 22~~	retained by MPCA
EEB 60	5	L	X				B-3	6/7 1458	~~Meez 23~~	inorg. not sampled

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report
(For CLP Use Only)

Case Number: 12095 | SAS No. (if ap ...ple):

1. Type of Activity (Check one)
ENF NPLD RA SI STSI
ER O&M RD ST Other (Specify) >
ESI PA RIFS STPA

2. Region Number: 5 | Sampling Co.: MPCA

Sampler (Name): Kevin Veach

4. Date Shipped: 6/8/89 | Airbill Number: 250882492 293

Carrier: Airborn Express

5. Sample Description *(Enter in Column A)*
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (SAS)
7. Waste (SAS)
8. Other (SAS) *(Specify)*

Non-Superfund Program: RCRA RFA

Site Name: WCI Freezer Div.

City, State: St Cloud, MN | Site Spill ID:

3. Ship To: Gulf South Env. Lab
6801 Press Dr. E. Bldg
New Orleans, LA
70126

Triple volume required for matrix spike/duplicate aqueous sample.

Ship medium and high concentration samples in paint cans.

See reverse for additional instructions.

CLP Sample Number (From labels)	(A) Sample Description (From box 1)	(B) Concentration L=low M=med H=high	(C) RAS Analysis VOA	BNA	Pest/ PCB	(D) Special Handling	(E) Station Location	(F) Date/Time of Sample Collection	(G) Corresponding CLP Inorganic Sample Number
EEB 61	5	L	X				B-4	6/8 1000	Meez 24
EEB 63	5	L	X				B-4	6/8 1025	Meez 26
EEB 64	5	L	X				B-4	6/8 1045	Meez 27
EEB 65	5	L	X				B-4	6/8 1100	Meez 28
EEB 66	5	L	X				B-4	6/8 1110	Meez 29
EEB 69	5	L	X				B-5	6/8 1350	Meez 32
EEB 70	5	L	X				B-5	6/8 1400	Meez 33
EEB 71	5	L	X				B-5	6/8 1415	Meez 34
EEB 72	5	L	X				B-5	6/8 1430	Meez 35
EEB 74	5	L	X				B-5	6/8 1455	Meez 37

EPA Form 9110-2 (6-89) Replaces EPA Form 2075-7, which may be used. Blue - SMO Copy Pink - Region Copy White - Lab Copy for Return to SMO Yellow - Lab Copy

ENVIRONMENT PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO. 89W01 | PROJECT NAME St. Des Moines

SAMPLERS: (Signature) Kevin Veach

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	120 ml. VOA							CORESP ITR #	REMARKS Tag #'s
EB45	6/7/89	959		X	B2	2	2							MEEZ 08	5-035515, 516
EB46	"	1011		X	B2	2	2							" 09	5-035518, 517
EB48	"	1045		X	B2	2	2							" 11	5-035524, 523
EB49	"	1056		X	B2	2	2							" 12	5-035527, 528
EB51	"	1148		X	B2	2	2							" 14	5-035532, 534
EB53	"	1334		X	B3	2	2							" 16	5-035539, 540
EB55	"	1357		X	B-3	2	2							" 18	5-035545, 546
EB56	"	1405		X	B-3	2	2							" 19	5-035548, 549
EB58	"	1430		X	B-3	2	2							" 21	5-035554, 553
EB60	"	1458		X	B-3	2	2							—	5-035560, 561

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Kevin Veach	6/8/89 2200				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Airbill # 250 882 4203 Lab name Gulf South Env. Lab C.O.C seals # 76524, 76525	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

05-00010

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

case 12095

PROJ. NO.	PROJECT NAME
89YV01	St. Des Moines

SAMPLERS: (Signature) Kevin Veach

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	120 ml VOA							REMARKS: Corresp ITR #	REMARKS: Tag #s
EEB61	6/8/89	1000		X	B4	2	2							MEER 24	5-035563, 564
" 63		1025		X	B4	2	2							" 26	5-035569, 570
" 64		1045		X	B4	2	2							" 27	5-035572, 573
" 65		1100		X	B4	2	2							" 28	5-035575, 576
" 66		1110		X	B4	2	2							" 29	5-035578, 579
" 69		1350		X	B5	2	2							" 32	5-035408, 409
" 70		1400		X	B5	2	2							" 33	5-035411, 412
" 71		1415		X	B5	2	2							" 34	5-035414, 415
" 72		1430		X	B5	2	2							" 35	5-035417, 418
" 74		1455		X	B5	2	2							" 37	5-035423, 424

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Kevin Veach	6/8/89 2230				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Airbill: 250882128203 Lab name: Gulf Coast Tech Labs CoC seals 96524, 96525	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

05-0011Y

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report
(For CLP Use Only)

Case Number: 12095 | SAS No. (if ap ...le):

1. Type of Activity (Check one): ENF, NPLD, RA, SI, STSI; ER, O&M, RD, ST, Other *(Specify)*; ESI, PA, RIFS, STPA

2. Region Number: 5 | Sampling Co.: MPCA

Sampler (Name): Kevin Veach

4. Date Shipped: 6/9/89 | Airbill Number: 250882~~03~~ 192

Carrier: Airborn Express

Non-Superfund Program: RCRA RFA

Site Name: WCI Freezer Division

City, State: St. Cloud, MN | Site Spill ID:

3. Ship To: Keystone Env. Res 3000 Tech. Ctr. Dr. Monroeville PA 15146 c/o Mary Badich

Double volume required for matrix spike/duplicate aqueous sample.

Ship medium and high concentration samples in paint cans.

See reverse for additional instructions.

5. Sample Description *(Enter in Column A)*
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (SAS)
7. Waste (SAS)
8. Other (SAS) *(Specify)*

CLP Sample Number (From labels)	(A) Sample Description (From box 1)	(B) Concentration L=low M=med H=high	(C) RAS Analysis: Total Metals	(C) RAS Analysis: Cyanide	(D) Special Handling	(E) Station Location	(F) Date/Time of Sample Collection	(G) Corresponding Organic Sample Number	
~~MEEZ00~~	~~5~~	~~L~~	~~X~~			~~B1~~	~~6/5 1025~~	~~EEB37~~	Retained by MPCA
MEEZ01	5	L	X			B1	6/5 1039	EEB 38	
MEEZ02	5	L	X			B1	6/5 1048	EEB 39	
MEEZ03	5	L	X			B1	6/5 1100	EEB 40	
~~MEEZ04~~	~~5~~	~~L~~	~~X~~			~~B1~~	~~6/5 1124~~	~~EEB 41~~	Retained by MPCA
MEEZ05	5	L	X			B1	6/5 1137	EEB 42	
~~MEEZ06~~	~~5~~	~~L~~	~~X~~			~~B1~~	~~6/5 1147~~	~~EEB 43~~	Retained by MPCA
MEEZ07	5	L	X			B1	6/5 1202	EEB 44	
MEEZ08	5	L	X			B2	6/7 959	EEB 45	
MEEZ09	5	L	X			B2	6/7 1011	EEB 46	
~~MEEZ10~~	~~5~~	~~L~~	~~X~~			~~B2~~	~~6/7 1026~~	~~EEB 47~~	Retained by MPCA
MEEZ11	5	L	X			B-2	6/7 1045	EEB 48	
MEEZ12	5	L	X			B-2	6/7 1056	EEB 49	
~~MEEZ13~~	~~5~~	~~L~~	~~X~~			~~B-2~~	~~6/7 1115~~	~~EEB 50~~	Sample retained by MPCA
MEEZ14	5	L	X			B-2	6/7 1148	EEB 51	
~~MEEZ15~~	~~5~~	~~L~~	~~X~~			~~B-2~~	~~6/7 1214~~	~~EEB 52~~	retained by MPCA
MEEZ16	5	L	X			B-3	6/7 1334	EEB 53	
~~MEEZ17~~	~~5~~	~~L~~	~~X~~			~~B-3~~	~~6/7 1345~~	~~EEB 54~~	retained by MPCA
MEEZ18	5	L	X			B-3	6/7 1357	EEB 55	

EPA Form 9110-1 (8-88) Replaces EPA Form 2075-6, which may be used. Green - SMO Copy Pink - Region Copy White - Lab Copy for Return to SMO Yellow - Lab Copy

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report
(For CLP Use Only)

Case Number: 12095 | SAS No. (if ap | ile)

1. Type of Activity (Check one)
ENF | NPLD | RA | SI | STSI
ER | O&M | RD | ST | X Other *(Specify)*
ESI | PA | RIFS | STPA

2. Region Number: 5 | Sampling Co.: MPCA

4. Date Shipped: 6/9/89 | Airbill Number: 250882 ~~2683~~ 192

Sampler (Name): Kevin Veach

Carrier: Airborn Express

Non-Superfund Program: RCRA RFA

Site Name: WCI Freezer Division

City, State: St Cloud MN | Site Spill ID:

3. Ship To:
Keystone Env. Resources
3000 Tech. Cntr. Dr
Monroeville Pa 15146
c/o Mary Badich

Double volume required for matrix spike/duplicate aqueous sample.

Ship medium and high concentration samples in paint cans.

See reverse for additional instructions.

5. Sample Description *(Enter in Column A)*
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (SAS)
7. Waste (SAS)
8. Other (SAS) *(Specify)*

CLP Sample Number (From labels)	(A) Sample Description (From box 1)	(B) Concentration L=low M=med H=high	(C) RAS Analysis: Total Metals	(C) RAS Analysis: Cyanide	(D) Special Handling	(E) Station Location	(F) Date/Time of Sample Collection	(G) Corresponding Organic Sample Number	
Meez 19	5	L	X			B-3	6/7 1405	FEB56	
~~Meez 20~~	~~5~~	~~L~~	~~X~~			B-3	~~6-7 1415~~	~~FEB57~~	Sample retained by MPCA
Meez 21	5	L	X			B-3	6-7 1430	FEB58	
~~Meez 23~~	~~5~~	~~L~~	~~X~~			B-3	6-7 1458	FEB60	inorg not sampled
Meez 24	5	L	X			B-4	6-8 1000	FEB61	
Meez 26	5	L	X			B-4	6-8 1025	FEB63	
Meez 27	5	L	X			B-4	6-8 1045	FEB64	
Meez 28	5	L	X			B-4	6-8 1100	FEB65	
Meez 29	5	L	X			B-4	6-8 1110	FEB66	
Meez 32	5	L	X			B-5	6-8 1350	FEB69	
~~Meez 33~~	~~5~~	~~L~~	~~X~~			B-5	6-8 1405	FEB70	NO inorg. sample
~~Meez 34~~	~~5~~	~~L~~	~~X~~			~~B-5~~	~~6-8 1415~~	~~FEB71~~	OK KV
Meez 35	5	L	X			B-5	6-8 1430	FEB72	
Meez 37	5	L	X			B-5	6-8 1455	FEB74	

EPA Form 9110-1 (8-88) Replaces EPA Form 2075-6, which may be used. Green - SMO Copy Pink - Region Copy White - Lab Copy for Return to SMO Yellow - Lab Copy

ENVIRONMENT PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
89YV01	ST. Des Moines

SAMPLERS: *(Signature)* Kevin Veach

Case # - 12095

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8 oz. Metals	Corresponding OTR #	TAG #
MEEB01	6/5/89	1039		X	B-1	1	1	EEB 38	5-035493
MEEB02	6/5/89	1048		X	B-1	1	1	EEB 39	5-035496
MEEB03	6/5/89	1100		X	B-1	1	1	EEB 40	5-035499
MEEB05	6/5/89	1132		X	B-1	1	1	EEB 42	5-035505
MEEB07	6/5/89	1202		X	B-1	1	1	EEB 44	5-035511
MEEB08	6/5/89	959		X	B-2	1	1	EEB 45	5-035516
MEEB09	6/5/89	1011		X	B2	1	1	EEB 46	5-035519
MEEB11	6/5/89	1045		X	B2	1	1	EEB 48	5-035523
MEEB12	6/5/89	1056		X	B2	1	1	EEB 49	5-035526
MEEB14	6/5/89	1148		X	B2	1	1	EEB 51	5-035532
MEEB16	6/5/89	1334		X	B3	1	1	EEB 53	5-035538
MEEB18	6/5/89	1357		X	B3	1	1	EEB 55	5-035544
MEEB19	6/5/89	1405		X	B3	1	1	EEB 56	5-035547
MEEB21	6/5/89	1430		X	B3	1	1	EEB 58	5-035553
						12	12		

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Kevin Veach	6/8/89 1715				
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	
				Air bill Number 950882 ~~2003~~ 192 Lab Name-Keystone Environ. Resources COC Seals 96522 96533	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

05-00831

ENVIRONMENT PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

case # - 12095

PROJ. NO.	PROJECT NAME
89W01	St Des Moines

SAMPLERS: (Signature) Kevin Veach

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Type of Marks	COMP. OTR # / Tag #	REMARKS
Meez 25	6/6/89	1000		X	B-4	1	1	EEB 61	S-035562
Meez 26	6/8/89	1025		X	B-4	1	1	EEB 63	S-035568
Meez 27	6/8/89	1045		X	B-4	1	1	EEB 64	S-035571
Meez 28	6/8/89	1120		X	B-4	1	1	EEB 65	S-035574
Meez 29	6/8/89	1110		X	B-4	1	1	EEB 66	S-035577
Meez 32	6/8/89	1350		X	B-5	1	1	EEB 69	S-035407
Meez 34	6/8/89	1415		X	B-5	1	1	EEB 71	S-035413
Meez 35	6/8	1430		X	B-5	1	1	EEB 72	S-035416
Meez 37	6/8	1455		X	B-5	1	1	EEB 74	S-035422

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Kevin Veach	6/8/89 1745				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Airbill # 250882 192 Lab name - Keystone Env. Resources COC Seals 96522 96533	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

05-00009

Appendix 3

Ground Water Sampling Visit Report

Appendix 4

WCI Sampling Data

pace®
INCORPORATED
THE ASSURANCE OF QUALITY

SUBSURFACE INVESTIGATION REPORT
WCI FREEZER DIVISION
ST. CLOUD, MINNESOTA

Prepared For:
Richard B. Clute
WCI Freezer Division
701 33rd Avenue North
St. Cloud, MN 56303

Prepared By:
PACE Laboratories, Inc.
1710 Douglas Drive North
Minneapolis, MN 55422

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

TABLE OF CONTENTS

I. Scope of Work

On June 5-8, 1989 soil borings were drilled at seven locations on WCI property. In addition, monitoring wells were installed at three of the seven soil boring locations. Soil boring and well locations were agreed upon by Minnesota Pollution Control Agency (MPCA) and WCI Freezer Division staff. Approximate boring and well locations are shown on Figure 1.

All soil borings were advanced with a hollow stem auger and three inch split spoon samples were collected at two and one-half foot intervals at five of the seven boring locations. Except as noted in Section II (below), selected portions of the borings were screened for organic vapors in the field using a HNu ISPI-101 trace gas analyzer. Selected portions of the borings were sampled by PACE and by the MPCA for subsequent laboratory analyses. Ground water samples were collected from the monitoring wells and samples were provided to MCPA and Metcalf and Eddy on August 23, 1989. A copy of the Braun Engineering Testing, Inc. report on drilling and well installation activities is provided in Appendix 1. Copies of the PACE and MPCA reports of laboratory analyses for the samples are provided in Appendices 2 and 3, respectively. A comparative Table of MPCA and PACE volatile organics data is provided in Appendix 4.

II. Review of Field and Laboratory Analytical Data

Soil Boring Samples

Boring B-1 (Braun designation ST-1) was placed in an open area on the southwestern portion of the property (see Figure 1). The location was chosen to allow collection of information on background soil, metal and organic concentration ranges.

Soil samples were obtained at two and one-half foot increments to a depth of 20-1/2 feet. Samples were screened in the field with the HNu. Instrument problems prevented the collection of reliable data.

The MCPA collected samples from the four to 20-1/2 foot interval and analyzed the samples for RAS total metals and volatile organic compounds (VOCs). PACE collected samples from the nine to 20-1/2 foot depth and analyzed for RAS total metals and cyanide. In addition, samples from the 16-1/2 to 18 and 19 to 20-1/2 foot intervals were analyzed by PACE for VOCs.

Data from both laboratories (for comparable sample intervals) is generally similar. Metal concentrations from sample to sample were either quite consistent (antimony, arsenic, beryllium, cobalt,

copper, lead, mercury, selenium, silver, thallium and vanadium) or varied by a factor of as much as two or more (aluminum, barium, cadmium, calcium, chromium, iron, magnesium, manganese, nickel, potassium, sodium, and zinc). Detectable concentrations of VOCs and cyanide were not reported present in samples analyzed by PACE.

MPCA's contract laboratory reported methylene chloride, acetone and methyl ethyl ketone (2-butanone) in most of their samples and blanks indicating that positive results are attributable to sampling or laboratory contamination.

Boring B-2 (Braun designation ST-6) was drilled to a depth of 22 feet on the west side of the 1980 warehouse building (See Figure 1). Samples from the nine to 22 foot increment of the boring were field screened with the HNu. Organic vapors were not noted in any of the samples.

The MCPA collected samples (their designation B-4) from the nine to 22 foot depth for analyses of RAS total metals and VOCs. PACE collected samples from the nine to 22 foot increment for analyses of RAS total metals and cyanide. In addition, samples from the nine to ten and one-half foot increment and the 19 to 20-1/2 foot increment were collected and analyzed by PACE for VOCs.

Metal data from both laboratories (for comparable sample intervals) is reasonably similar. The data indicates sample to sample variability in metals concentrations with no obvious patterns apparent. Metals of interest (chromium and lead) were noted at concentrations not significantly different compared to background concentrations. Cyanide and VOCs were not present in PACE's samples at detectable concentrations. The MPCA's contract laboratory reported acetone and methylene chloride present in samples and associated blanks from the entire sampled interval. Again, these consistent results indicate sampling or laboratory contamination.

Boring B-3 (Braun designated ST-7) was drilled to a depth of 25-1/2 feet on the south side of the 1980 warehouse building (see Figure 1). Samples from the six and one-half to 25-1/2 foot interval of the boring were field screened with the HNu. Organic vapors were reported present at 16-1/2 to 18 feet, 19 to 20-1/2 feet and 24 to 25-1/2 feet at 1, 1.5 and 2.5 parts per million (ppm), respectively.

The MPCA collected samples (their designation B-5) from the 14 to 25-1/2 foot interval for analyses of RAS total metals and from the 11-1/2 to 25-1/2 foot interval for VOCs. PACE collected samples from the nine to 25-1/2 foot section for analyses of RAS metals and cyanide. In addition, samples from the 21-1/2 to 25-1/2 foot interval were analyzed by PACE for VOCs.

Metals data from both laboratories (for comparable sample intervals) is similar when matrix interferences, spike recovery control limit and duplicate control limit differences are considered. The data indicates sample to sample variability in metals concentrations and no apparent pattern. Chromium and lead concentrations were not significantly different from concentrations in the background samples. Cyanide and VOCs were not present in PACE's samples at detectable concentrations. The MPCA's contract laboratory reported acetone and methylene chloride present in samples and blanks in four of the five sampled intervals indicating laboratory contamination in sample preparation or analyses. In the case of the 16-1/2 to 18 foot interval, methylene chloride was reported present in samples and blanks while acetone was originally reported present in the sample and blank(s) but was later somehow determined not present in the associated blanks(s). Supporting information for this determination is not provided in the materials supplied by the MPCA.

Boring B-4 (Braun designation ST-4) was drilled to a depth of 17 feet on the south side of the Number 4 paint system building (see Figure 1). Samples from the entire sample interval were field screened with the HNu. Organic vapors were not noted in any of the samples.

The MPCA collected samples (their designation B-2) from the zero to 14-1/2 foot interval and analyzed the samples for VOCs. PACE collected samples from the zero to three foot depth for VOC analyses.

Detectable concentrations of VOCs were not present in the PACE samples. The MPCA's contract laboratory reported acetone and methylene chloride present in samples and associated blanks from the zero to one and one-half foot and one and one-half to three foot intervals. Acetone and methylene chloride were reported present in the six and one-half to eight foot sample and associated blank. Acetone and methylene chloride were present in samples (and blanks) from the nine to 14-1/2 foot interval and methyl ethyl ketone (MEK) ranged from 34 to 37 ug/kg in that interval. This pattern again indicates laboratory contaminant sources.

Boring B-5 (Braun designation ST-5) was drilled to a depth of 20-1/2 feet on the south side of the Number 4 paint system building east of B-4. Samples for the entire sample interval were field screened with the HNu. Organic vapors were not noted in any of the samples.

The MPCA collected samples (their designation B-3) from selected portions of the one and one-half to 20-1/2 foot interval for analyses of VOCs. PACE collected samples from the one and one-half to five and one-half foot interval for VOC analyses.

Detectable concentrations of VOC were not present in samples collected by PACE. The MPCA's contract laboratory again reported acetone and methylene chloride in all samples and associated blanks.

Ground Water Samples

Monitoring wells MW-1, MW-2 and MW-3 were sampled on August 23, 1989 as noted earlier in this report.

The MPCA collected split samples from the wells for analyses of RAS metals and VOCs. PACE collected samples for RAS metals, cyanide and VOCs.

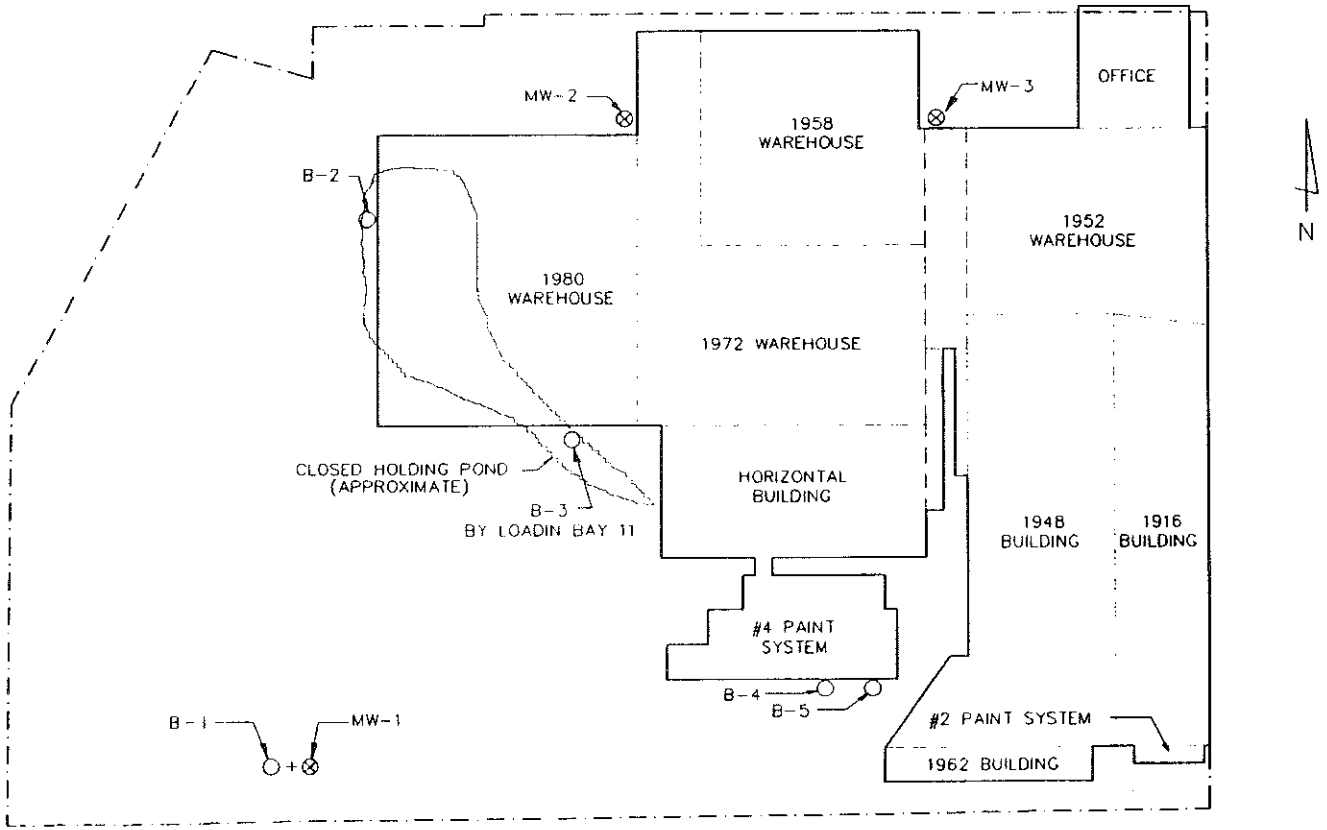
Review of the data indicates that metals concentrations as reported by PACE and MPCA's contract laboratory are similar. Detectable concentrations of cyanide and VOCs were not present in the samples analyzed by PACE. MPCA's contract laboratory did not report detectable concentrations of VOCs in the samples with the exception of methylene chloride in the MW-1 sample which was due to laboratory contamination.

III. Conclusions and Recommendations

In our opinion, the periodic reporting of acetone, methylene chloride, MEK, unknown hydrocarbons and unknown compounds by the MPCA's contract laboratory in both samples and associated blanks is reflective of laboratory contaminant sources. We further believe that releases of hazardous constituents to soils and ground water have not been demonstrated at the WCI facility. Aside from future abandonment of the monitoring wells described in this report, further investigative efforts are not suggested or necessary.

FIGURE 1
WCI FREEZER DIVISION
SOIL BORING AND WELL LOCATIONS

PACE Laboratories, Inc. June 5-8, 1989



○ SOIL BORING LOCATION

⊗ MONITORING WELL LOCATION

Rcvd 7/20/89

C89-112 SOIL BORINGS & MONITORING
WELL INSTALLATION
SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

WCI FREEZER DIVISION

July 19, 1989

BRAUN™

BRAUN ENGINEERING TESTING Incorporated

Quality Services Since 1957

CONSULTING ENGINEERS/
GEOTECHNICAL AND MATERIALS

Reply to address/phone #:

P.O. Box 189
St. Cloud, MN 56302
(612) 253-9940
FAX #253-3054

MINNESOTA
Minneapolis
Hibbing
St. Cloud
Rochester
St. Paul

AFFILIATED OFFICES

NORTH DAKOTA
Bismarck
Williston
Minot

MONTANA
Billings
Bozeman

ILLINOIS
Chicago

J.S. Braun, P.E.
Cameron G. Kruse, P.E.
Geo. D. Kluempke, P.E.
Paul H. Anderson
David R. Hausler, P.E.
Roger V. Blomquist, PhD.
James J. Craig, Jr., P.E.
Dale R. Allen, P.E.
Wm. M. Weyrauch, P.E.
Thomas R. Blumberg
Michael M. Heuer, P.E.
Kurt E. Dvorak
Norman E. Hall
Ray A. Huber, P.E.
William K. Cody, P.E.

AFFILIATED COMPANIES
Braun Environmental Laboratories, Inc.
Braun Pavement Technologies, Inc.

July 19, 1989

WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN 56303

Attn: Mr. Richard Clute:

C89-112 SOIL BORINGS & MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

Dear Mr. Clute:

We have recently conducted seven soil borings and installed and developed three monitoring wells at the WCI Freezer Division site located in St. Cloud, MN. These services were authorized by you on May 26, 1989.

FIELD INVESTIGATION

The soil borings were conducted and the monitoring wells installed between June 5 and 8, 1989. The boring locations were selected and well depths determined in the field by a representative from PACE Laboratory, Inc. A sketch showing the boring/monitoring well locations, as installed, is included with this report.

The ground surface elevation at the bore hole locations and at the top of the riser pipes were provided by RCM Associates, Inc.

The penetration test borings were performed between June 2 and June 6, 1989, with a truck-mounted core and auger drill. The sampling was in accordance with ASTM D1586 "Penetration Test and Split Barrel Sampling of Soils". Using this method, we advanced the bore hole with the hollow-stem auger to the desired test depth. Then a 140-pound hammer falling 30 inches drove a standard, 3-inch OD, split barrel sampler a total penetration of 1½ feet below the tip of the hollow-stem auger. The blows for the last foot of penetration were

recorded and are an index of soil strength characteristics. Soil samples were taken at increments indicated on the Log of Boring sheets.

Soils encountered in the borings were visually and manually classified in the field by the crew chief in accordance with ASTM D2487 "Unified Soils Classification System" and ASTM D2488 "Recommended Practice for Visual and Manual Description of Soils." A copy of ASTM D2487 is attached. Due to the amount of sample obtained at each sampling interval by PACE & the Minnesota Pollution Control Agency (MPCA), representative samples were not returned to the laboratory for review of the field classifications by a soils engineer. Therefore, the Log of Boring sheets are based solely on the field classifications.

RESULTS

Log of Boring sheets indicating the depth and identification of the various soil strata, the penetration resistances and water level information are attached. It should be noted that the depths shown as boundaries between the strata are only approximate. The actual change may be more of a transition and the depth of change likely varies horizontally.

In addition to the attached Log of Boring sheets, monitoring well diagrams and water well records have been prepared indicating the pertinent well installation data.

The monitoring wells were installed utilizing a two-inch diameter stainless steel riser pipe and stainless steel well screen. The screens are ten feet in length and have a .010 inch slot size. The stainless steel riser pipe was then extended to the surface with the riser pipe being encased in a four inch diameter protective casing with locking cap. In addition, steel protective posts were installed at each monitoring well. The monitoring wells were installed in accordance with current Minnesota Department of Health Water Well Construction Code.

The monitoring wells were developed by means of bailing on June 9, 1989. The bailer utilized was 1.75 inches in diameter and five feet in length. Each of the monitoring wells were bailed for approximately two hours. Sixty-five, fifty-five and fifty gallons of water were evacuated from monitoring wells one, two and three respectively. After the bailing process was completed the water clarity in monitoring wells one and three appeared cloudy and monitoring well two was clear.

REMARKS

It is our pleasure to be of service to you by providing these soil borings and monitoring well installation services. If you have any questions regarding the services provided to date, or if we can be of assistant in further evaluating these data, please contact Mr. Gary Traut at (612)253-9940.

Very truly yours,

BRAUN ENGINEERING TESTING, INC.

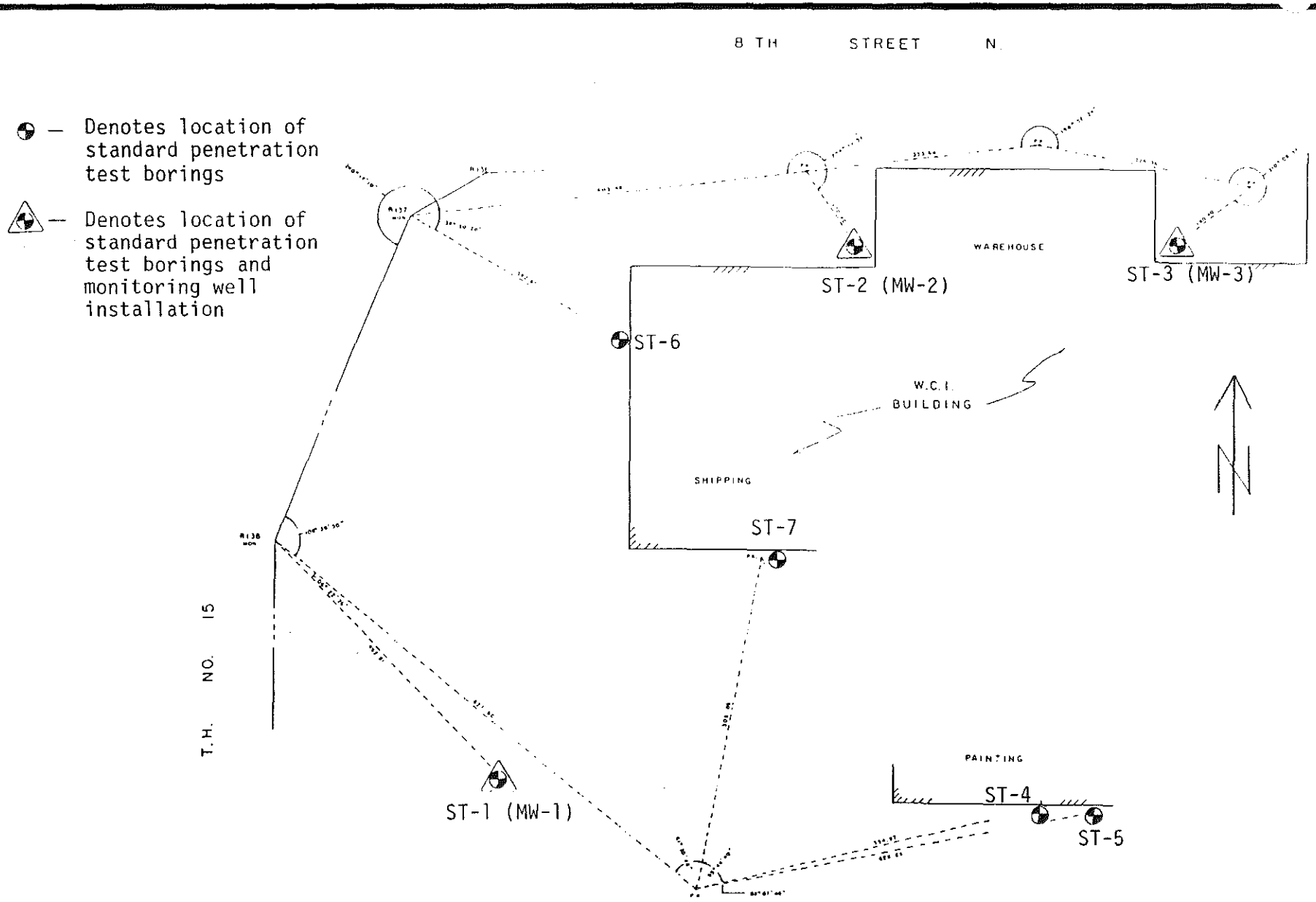
Gary L. Traut
Senior Engineering Assistant

George D. Kluempke, P.E.
Vice President

GLT/GDK/bjb

cc: Pace Laboratories, Inc.
Dan Comeau

BRAUN



BRAUN

C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

Date:	7/17/89
Revised:	
Drawn:	GLT
Scale:	Reduction

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT:
C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

BORING: ST-1 (MW-1)

LOCATION:
See Attached Sketch

DATE: 6-5-89

SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
1039.9	0.0					
1038.9	1.0	SP-SM	POORLY GRADED SAND with SILT, mostly fine to medium grained,[1]			[1]dark brown. (Topsoil)
1037.4	2.5	SM	SILTY SAND, mostly fine to medium grained, with a trace of GRAVEL, brown, moist, medium[2]			[2]dense. (Outwash)
		SP	POORLY GRADED SAND with GRAVEL, mostly fine to medium grained, brown, moist, medium dense to dense. (Outwash)	30		The ground surface elevation at the bore hole locations and at the top of the riser pipe elevations were provided by RCM Associates, Inc.
				45		
				11		
1030.9	9.0				V	
		SP	POORLY GRADED SAND with GRAVEL, mostly fine to medium grained, brown, waterbearing, medium dense to dense. (Outwash)	18		
				40		
1025.9	14.0					
		SP	POORLY GRADED SAND, mostly fine to medium grained, with a trace of GRAVEL, brown, waterbearing, medium dense. (Outwash)	27		Monitoring well #1 installed in bore hole at the 15' depth.
				29		
1019.4	20.5			12		
			END OF BORING. Water level down 10' with 20' of hollow-stem auger in the ground.			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT:
C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

BORING: ST-2 (MW-2)

LOCATION:
See Attached Sketch

DATE: 6-6-89

SCALE: 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
1041.9	0.0					
1041.7	0.2		Bituminous .			
		SP	POORLY GRADED SAND, mostly fine to medium grained, with a trace of GRAVEL, brown, moist, dense. (Outwash)	31		
1027.9	14.0					
		SP-SM	POORLY GRADED SAND with SILT, mostly fine to medium grained, with a little GRAVEL, brown to the 20' depth then gray, waterbearing, medium dense. (Outwash)	14		
				17		
1019.9	22.0					Monitoring well #2 installed in bore hole at the 22' depth.
			END OF BORING. Water level down 17' with 22' of hollow-stem auger in the ground.			

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT:	BORING: ST-3 (MW-3)
C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES WCI Freezer Division 701 N 33rd Ave. St. Cloud, MN	LOCATION: See Attached Sketch
	DATE: 6-5-89 SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
1041.7	0.0					
1041.2	0.5		Concrete.			
1039.7	2.0		FILL: consisting primarily of POORLY GRADED SAND (SP), mostly fine to medium grained, dark[1]			[1]brown, moist.
1033.7	8.0	SP	POORLY GRADED SAND, mostly fine to medium grained, with a trace of GRAVEL, brown, moist. (Outwash)			
1027.7	14.0	SP-SM	POORLY GRADED SAND with SILT, mostly fine to medium grained, with a little GRAVEL, brown, moist, medium dense. (Outwash)	14		
1021.2	20.5	SP	POORLY GRADED SAND, medium to coarse grained, with a little GRAVEL, brown, waterbearing, medium dense. (Outwash)	20		
				22		Monitoring well #3 installed in bore hole at the 20' depth.
			END OF BORING. Water level down 16' with 20' of hollow-stem auger in the ground.			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT:
C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

BORING: ST-4

LOCATION:
See Attached Sketch

DATE: 6-7-89

SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
1044.7	0.0					
			FILL: consisting primarily of SILTY SAND (SM), mostly fine to medium grained, with a trace of GRAVEL, dark brown, moist.	14		
1042.7	2.0					
		SP	POORLY GRADED SAND, mostly fine to medium grained, with a little GRAVEL, few Cobbles, brown, moist, medium dense. (Outwash)	18		
1039.7	5.0					
		SM	SILTY SAND, mostly fine to medium grained, with a trace of GRAVEL, few Cobbles, dark brown to black, moist, very dense. (Till)	32		
				91		
1035.7	9.0					
		SM	SILTY SAND, mostly fine to medium grained, with a trace of GRAVEL, few Cobbles, gray, moist, very dense. (Till)	55		
				300/3"		
				97		
1027.2	17.5					
			END OF BORING. Water level not encountered with 17' of hollow-stem auger in the ground. Water level not encountered to cave-in depth of 15' immediately after withdrawal of auger. Boring then backfilled.			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT:
C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

BORING: ST-5

LOCATION:
See Attached Sketch

DATE: 6-7-89

SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
1044.9	0.0					
1044.5	0.4		Bituminous.			
			FILL: consisting primarily of POORLY GRADED SAND with GRAVEL (SP), mostly fine to medium grained, brown to dark brown, few Roots, moist.	14		
1041.9	3.0	SP	POORLY GRADED SAND, mostly fine to medium grained, with a trace of GRAVEL, few Cobbles, brown, moist, medium dense. (Outwash)	11		
				22		
				22		
1032.9	12.0	SM	SILTY SAND, mostly fine grained, with a little GRAVEL, gray, moist, very dense. (Till)	73		
				139		
				75		
1024.4	20.5			84		
			END OF BORING. Water level not encountered with 20' of hollow-stem auger in the ground. Boring then backfilled.			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT:
C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

BORING: ST-6

LOCATION:
See Attached Sketch

DATE: 6-8-89

SCALE: 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
1040.9	0.0					
1040.5	0.4		Bituminous.			
1039.4	1.5		Aggregate Base.			
			FILL: consisting primarily of POORLY GRADED SAND (SP), mostly fine to medium grained, with a little GRAVEL, brown, moist.			
1032.9	8.0					
			POSSIBLE FILL: consisting primarily of SILTY SAND (SM), mostly fine to medium grained, with a trace of GRAVEL, dark brown, moist.	41		
1029.9	11.0					
		SP-SM	POORLY GRADED SAND with SILT, mostly fine to medium grained, with a little GRAVEL, brown, moist, dense. (Outwash)	43		
1026.9	14.0					
		SP	POORLY GRADED SAND, mostly fine to medium grained, with a trace of GRAVEL, brown, waterbearing, loose. (Outwash)	9		
				6		
1020.9	20.0					
		SC-SM	SILTY CLAYEY SAND, mostly fine to medium grained, with a trace of GRAVEL, gray, wet, very dense. (Till)	112		
1018.4	22.5					
			END OF BORING. Water level down 14' with 22' of hollow-stem auger in the ground. Water level not encountered to cave-in depth of 10' immediately after withdrawal of auger. Boring then backfilled.	80		

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT:
C89-112 SOIL BORINGS AND MONITORING WELL INSTALLATION SERVICES
WCI Freezer Division
701 N 33rd Ave.
St. Cloud, MN

BORING: ST-7

LOCATION:
See Attached Sketch

DATE: 6-8-89

SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
1041.1	0.0					
1040.6	0.5		Concrete.			
			FILL: consisting primarily of POORLY GRADED SAND with GRAVEL, mostly fine to medium grained, brown, moist.			
				60		
				30		
1030.1	11.0					
		SP	POORLY GRADED SAND, mostly fine to medium grained, with a trace of GRAVEL, brown, waterbearing, very loose to medium dense. (Outwash)	13		
				8		
				7		
				27		
				4		
1015.6	25.5			22		
			END OF BORING. Water level down 15' with 25' of hollow-stem auger in the ground. Water level down 12' immediately after withdrawal of auger. Boring then backfilled.			

(See Report and Standard Plates for evaluation and descriptive terminology.)

MONITORING WELL FIELD DATA SHEET

Minnesota Unique Well Number: 451745

Client _____ Proj. No. C89-112 Location WCI Freezer Division

Well Number MW-1 Well Location _____ Date of Installation 6-5-89

Date of Revision _____ Crew _____ B.M. Location & Elev.(±0.01) _____

Stick up above ground (to 0.1') 2.7'

Top of riser pipe (w/o cap) Elev. (±0.01') 1042.46

Ground surface Elev. (±0.1') 1039.9

Depth to bottom of surface seal 3'

Approximate water level before installation 7½'

Approximate depth to first water encountered in drilling 8'

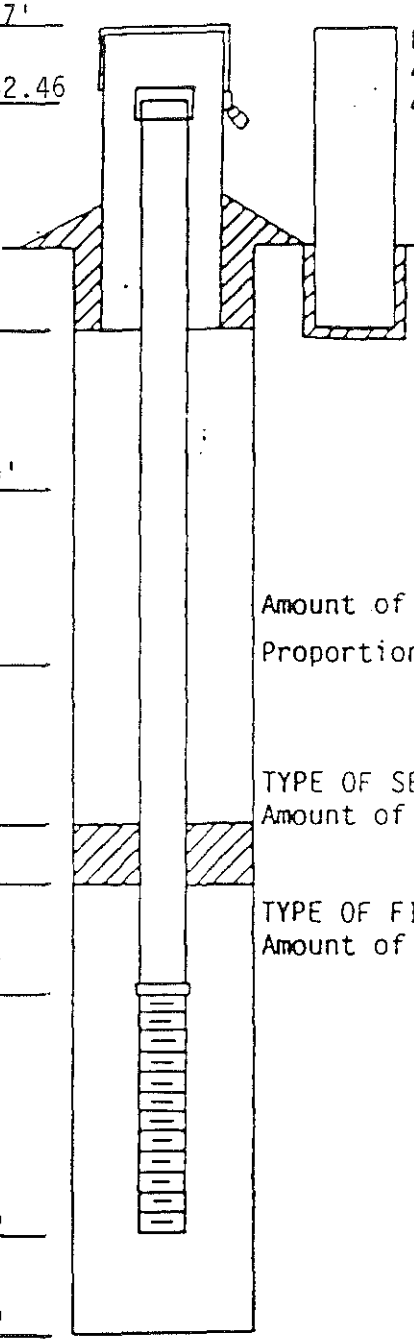
Depth to top of seal 3'

Depth to bottom of seal 4'

Depth to top of screen 5'

Depth to bottom of screen 15'

Depth to bottom of boring 20'



BUMPER POST:
4" x 4" x 7' Wood ____
4" x 7' black capped steel 3

Protective Cover:
Type 4" black iron
Length 5'
Lock # yes

Type of sealing material neat cement grout

RISER PIPE:
Type Stainless
Diameter 2'
Total Length 8'
Sections Used 1-5', 1-3'
Couplings NA
Cap Yes X No ____

NEAT CEMENT GROUT ABOVE SEAL
Amount of material used 1 bag Portland, ½ bag bentonite
Proportions _____

TYPE OF SEALING MATERIAL: Bentonite slurry
Amount of material used ½ bag Bentonite

TYPE OF FILTER MATERIAL: natural sand & silica sand
Amount of material used 1 bag silica sand

SCREEN: Johnson
Type Stainless
Slot Size .010
Length 10'
Diameter 2"
Plug/Point Plug

Method of advance:
HSA X I.D. 3¼"
Casing ____ I.D. ____
Tricone ____ O.D. ____

Method of development:
Air ____

Remarks: _____

BRAUN

MONITORING WELL FIELD DATA SHEET

Minnesota Unique Well Number: 451746

Client _____ Proj. No. C89-112 Location WCI Freezer Division

Well Number MW-2 Well Location _____ Date of Installation 6-6-89

Date of Revision _____ Crew _____ B.M. Location & Elev.(±0.01) _____

Stick up above ground (to 0.1') 3.2'

Top of riser pipe (w/o cap) Elev. (±0.01') 1044.93

Ground surface Elev. (±0.1') 1041.9

Depth to bottom of surface seal 7½'

Approximate water level before installation 15'

Approximate depth to first water encountered in drilling 14'

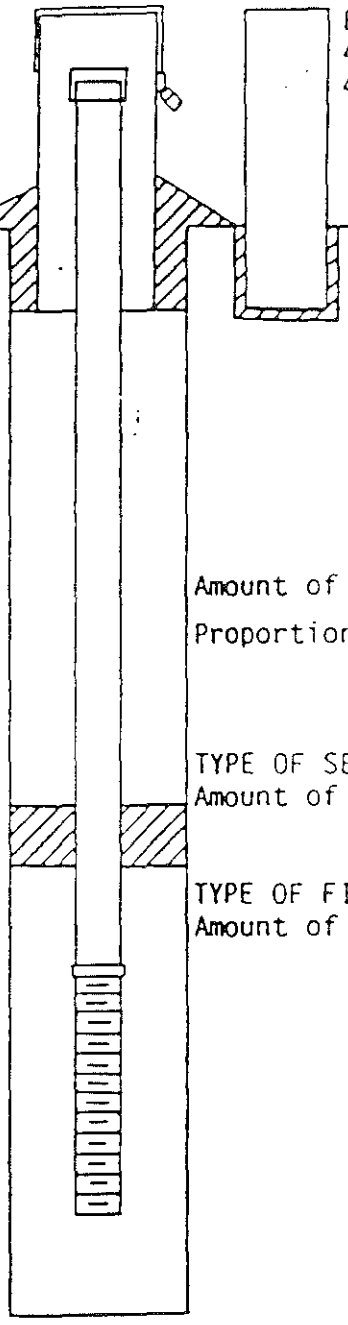
Depth to top of seal 7½'

Depth to bottom of seal 9'

Depth to top of screen 12'

Depth to bottom of screen 22'

Depth to bottom of boring 22'



BUMPER POST:
4" x 4" x 7' Wood _____
4" x 7' black capped steel 2

Protective Cover:
Type 4" Black Iron
Length 5'
Lock # yes

Type of sealing material neat cement grout

RISER PIPE:
Type Stainless
Diameter 2"
Total Length 15'
Sections Used 1-10', 1-5'
Couplings NA
Cap Yes X No ____

NEAT CEMENT GROUT ABOVE SEAL
Amount of material used 2 Bags Portland, ½ bag
Proportions Bentonite

TYPE OF SEALING MATERIAL: Bentonite Slurry
Amount of material used ½ bag Bentonite

TYPE OF FILTER MATERIAL: Natural Sand
Amount of material used --

SCREEN: Johnson
Type Stainless
Slot Size .010
Length 10'
Diameter 2"
Plug/Point plug

Method of advance:
HSA X I.D. 3¼"
Casing ____ I.D. ____
Tricone ____ O.D. ____

Method of development:
Air ____

Remarks: _____

BRAUN

MONITORING WELL FIELD DATA SHEET

Minnesota Unique Well Number: 451747

Client _____ Proj. No. C89-112 Location WCI Freezer Division

Well Number MW-3 Well Location _____ Date of Installation 6-6-89

Date of Revision _____ Crew _____ B.M. Location & Elev.(±0.01) _____

Stick up above ground (to 0.1') 2.2'

Top of riser pipe (w/o cap) Elev. (±0.01') 1043.71

Ground surface Elev. (±0.1') 1041.7

Depth to bottom of surface seal 7'

Approximate water level before installation 14'

Approximate depth to first water encountered in drilling 14'

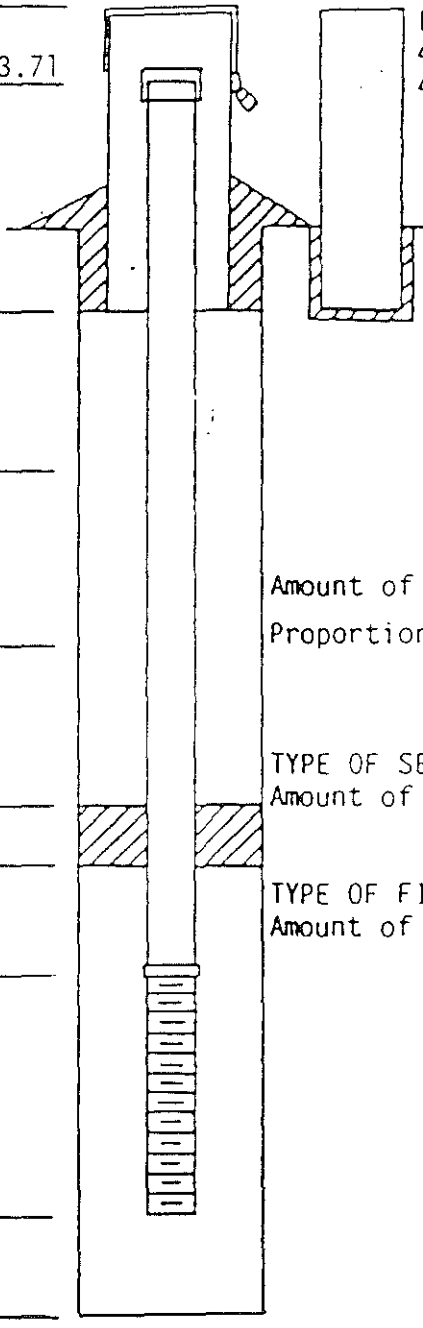
Depth to top of seal 7'

Depth to bottom of seal 8'

Depth to top of screen 10'

Depth to bottom of screen 20'

Depth to bottom of boring 20'



BUMPER POST:
4" x 4" x 7' Wood ____
4" x 7' black capped steel ____

Protective Cover:
Type 4" Black Iron
Length 5'
Lock # yes

Type of sealing material neat cement grout

RISER PIPE:
Type Stainless
Diameter 2"
Total Length 12'
Sections Used 1-10', 1-5'
Couplings NA
Cap Yes X No ____

NEAT CEMENT GROUT ABOVE SEAL

Amount of material used 2 bag Portland, ½ bag Bentoni

Proportions _____

TYPE OF SEALING MATERIAL: Bentonite Slurry
Amount of material used ½ bag Bentonite

TYPE OF FILTER MATERIAL: Natural Sand
Amount of material used _____

SCREEN: Johnson
Type Stainless
Slot Size .010
Length 10'
Diameter 2"
Plug/Point plug

Method of advance:
HSA X I.D. 3¼"
Casing ____ I.D. ____
Tricone ____ O.D. ____

Method of development:
Air

Remarks: _____

BRAUN

STATE OF MINNESOTA DEPARTMENT OF HEALTH

WATER WELL RECORD

Minnesota Statutes 156A.01-.08

MINNESOTA UNIQUE WELL NO. for Water Sample: 451746

1. LOCATION OF WELL

County Name: Stearns

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124 N/S	28 E/W	9	NE ¼ NE ¼ SE ¼

Distance and Direction from Road Intersection or Street Address and City of Well Location:

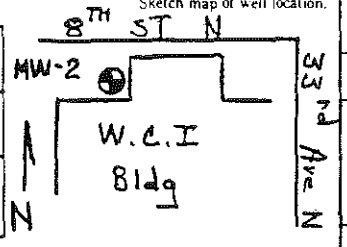
Show exact location of well in section grid with "X." (N, W, E, S; ½ mi.; 1 mile)

Addition Name:

Block Number:

Lot Number:

Sketch map of well location.



2. PROPERTY OWNER'S NAME

W.C.I Freezer Division

Address: 701 33rd Ave. No
St. Cloud, MN 56303

3. FORMATION LOG

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Bituminous			0	.2
Poorly graded sand	Brown		.2	14
Poorly graded sand w/silt	Brown		14	22

Use a second sheet, if needed

4. WELL DEPTH (completed): 22 ft. **Date of Completion:** 6-6-89

5. DRILLING METHOD

1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☒ HSA
3☐ Rotary 6☐ Jetted 9☐ Power auger 3¼" ID

6. DRILLING FLUID: None

7. USE

1☐ Domestic 4☒ Monitoring 8☐ Heat Pump
2☐ Irrigation 5☐ Public 9☐ Industry
3☐ Test Well 6☐ Municipal 10☐ Commercial
7☐ Air Conditioning 11☐ _____

8. CASING

1☐ Black 4☒ Threaded HEIGHT: Above/Below
2☐ Galv. 5☐ Welded Surface _____ ft.
3☐ Plastic 6☒ Stainless Drive Shoe? Yes___ No___

2 in. to 12 ft. Weight _____ lbs./ft. HOLE DIAM. 7 in. to 22
_____ in. to _____ ft. Weight _____ lbs./ft. _____ in. to _____
_____ in. to _____ ft. Weight _____ lbs./ft. _____ in. to _____

9. SCREEN Or open hole from _____ ft. to _____ ft.

Make: Johnson
Type: Stainless Dia. 2"
Slot/Gauze: .010 Length: 10'
Set between 12 ft. and 22 ft.
FITTINGS:

10. STATIC WATER LEVEL

14.0 ft. ☒ below ☐ above land surface Date Measured 6-6-89

11. PUMPING LEVEL (below land surface)

_____ ft. after _____ hrs. pumping _____ g.p.m.
_____ ft. after _____ hrs. pumping _____ g.p.m.

12. HEAD WELL COMPLETION

1☐ Pitless adapter, manufacturer _____ model _____
2☐ Basement offset 3☐ At least 12" above ground
4☐ Plastic casing protection _____

13. WELL GROUTED?

☒ Yes ☐ No

1☒ Neat Cement 2☐ Bentonite 3☐ _____
Grout material: portland from 0 to 7.5 ft. cu. yds. _____

14. NEAREST SOURCES OF POSSIBLE CONTAMINATION

_____ feet _____ direction _____ type
Well disinfected upon completion? ☐ Yes ☐ No

15. PUMP

Date installed _____ ☐ Not installed
Manufacturer's name _____
Model number _____ HP _____ Volts _____
Length of drop pipe _____ ft. capacity _____ g.p.m.
Material of drop pipe _____
Type: 1☐ Submersible 3☐ L.S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐ _____

16. EXISTING WELLS

Unused well on property? ☐ Yes ☐ No
Abandoned ☐ Permanent ☐ Temporary ☐ Not sealed

17. REMARKS, ELEVATION, SOURCE OF DATA, etc.

The top of the rise pipe is elevation 1044.93. This elevation was provided by RCM & Associates Inc.

18. WATER WELL CONTRACTORS CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Braun Engineering Testing (Licensed Business Name) 059 (License No.)
Address: PO Box 189 St. Cloud, MN 56302
Signed _____ (Authorized Representative) Date 7/18/89
Bill Donahue (Name of Driller) Date 6-6-89

IMPORTANT: 451746

5/74 3084

STATE OF MINNESOTA DEPARTMENT OF HEALTH

WATER WELL RECORD

Minnesota Statutes 156A.01-.08

MINNESOTA UNIQUE WELL NO. *for Water Sample*: 451745

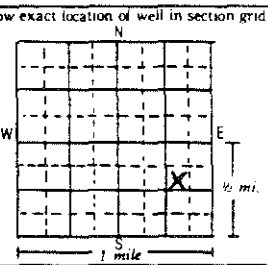
1. LOCATION OF WELL

County Name: Stearns

Township Name: St. Cloud | Township Number: 124 | Range Number: 28 | Section No.: 9 | Fraction: SW¼ NE¼ SE¼

Distance and Direction from Road Intersection or Street Address and City of Well Location:

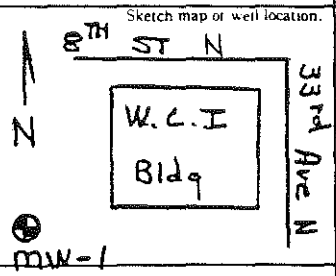
Show exact location of well in section grid with "X." Sketch map of well location.



Addition Name:

Block Number:

Lot Number:



2. PROPERTY OWNER'S NAME

WCI Freezer Division

Address: 701 33rd AVE. No

St. Cloud, MN 56303

3. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Poorly graded sand w/silt	Dark Brown		0	1
Silty Sand	Brown		1	2.5
Poorly graded sand	Brown		2.5	20

Use a second sheet, if needed

4. WELL DEPTH (completed): 15 ft. | Date of Completion: 6-5-89

5. DRILLING METHOD

1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☒ HSA
3☐ Rotary 6☐ Jetted 9☐ Power auger 3¼" ID

6. DRILLING FLUID: None

7. USE

1☐ Domestic 4☒ Monitoring 8☐ Heat Pump
2☐ Irrigation 5☐ Public 9☐ Industry
3☐ Test Well 6☐ Municipal 10☐ Commercial
7☐ Air Conditioning 11☐ _____

8. CASING

1☐ Black 4☒ Threaded
2☐ Galv. 5☐ Welded
3☐ Plastic 6☒ Stainless

HEIGHT: (Above) Below
Surface 2.7 ft.
Drive Shoe? Yes___ No___

2 in. to 5 ft. Weight _____ lbs./ft. | HOLE DIAM. 7 in. to 22
_____ in. to _____ ft. Weight _____ lbs./ft. | _____ in. to _____
_____ in. to _____ ft. Weight _____ lbs./ft. | _____ in. to _____

9. SCREEN

Make: Johnson
Type: Stainless Dia. 2"
Slot/Gauze: .010 Length: 10'
Set between 5 ft. and 15 ft.

Or open hole from _____ ft. to _____ ft.

FITTINGS:

10. STATIC WATER LEVEL: 9.0 ft. ☒ below ☐ above land surface | Date Measured 6-5-89

11. PUMPING LEVEL (below land surface)

_____ ft. after _____ hrs. pumping _____ g.p.m.
_____ ft. after _____ hrs. pumping _____ g.p.m.

12. HEAD WELL COMPLETION

1☐ Pitless adapter, manufacturer _____ model _____
2☐ Basement offset 3☐ At least 12" above ground
4☐ Plastic casing protection _____

13. WELL GROUTED?

☒ Yes ☐ No

☒ Neat Cement 2☐ Bentonite 3☐ _____

Grout material: portland from 0 to 3 ft. cu. yds.

14. NEAREST SOURCES OF POSSIBLE CONTAMINATION

_____ feet _____ direction _____ type

Well disinfected upon completion? ☐ Yes ☐ No

15. PUMP

Date installed _____ ☐ Not installed

Manufacturer's name _____

Model number _____ HP _____ Volts _____

Length of drop pipe _____ ft. capacity _____ g.p.m.

Material of drop pipe _____

Type: 1☐ Submersible 3☐ L.S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐ _____

16. EXISTING WELLS

Unused well on property? ☐ Yes ☐ No

Abandoned ☐ Permanent ☐ Temporary ☐ Not sealed

17. REMARKS, ELEVATION, SOURCE OF DATA, etc.

The top of the riser pipe is at elevation 1042.46. This elevation was provided by RCM & Associates Inc.

18. WATER WELL CONTRACTORS CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Braun Engineering Testing (Licensed Business Name) 059 (License No.)

Address: PO Box 189 St Cloud MN 563

Signed: _____ (Authorized Representative) Date 7/18/8

Bill Donahue (Name of Driller) Date 6-5-8

IMPORTANT: 451745

5/74 30M

STATE OF MINNESOTA DEPARTMENT OF HEALTH

WATER WELL RECORD

Minnesota Statutes 156A.01-.08

MINNESOTA UNIQUE WELL NO. for Water Sample: 451747

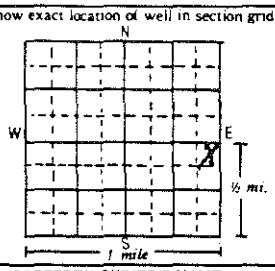
1. LOCATION OF WELL

County Name: Stearns

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124 N or S	28 E or W	9	NE ¼ NE ¼ SE ¼

Distance and Direction from Road Intersection or Street Address and City of Well Location:

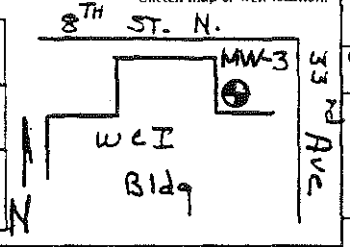
Show exact location of well in section grid with "X." Sketch map of well location.



Addition Name:

Block Number:

Lot Number:



2. PROPERTY OWNER'S NAME

WCI Freezer Division

Address: 701 33rd Ave No

St. Cloud MN 56303

3. FORMATION LOG

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Concrete			0	.5
Poorly graded sand	Brown		.5	8
Poorly graded Sand w/silt	Brown		8	14
Poorly graded sand	Brown		14	20

Use a second sheet, if needed

4. WELL DEPTH (completed): 20 ft.

Date of Completion: 6-6-89

5. DRILLING METHOD

1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug

2☐ Hollow rod 5☐ Air 8☐ Bored 11☒ HSA

3☐ Rotary 6☐ Jetted 9☐ Power auger 3¼" ID

6. DRILLING FLUID: None

7. USE

1☐ Domestic 4☒ Monitoring 8☐ Heat Pump

2☐ Irrigation 5☐ Public 9☐ Industry

3☐ Test Well 6☐ Municipal 10☐ Commercial

7☐ Air Conditioning 11☐ _____

8. CASING

1☐ Black 4☒ Threaded HEIGHT: Above/Below

2☐ Galv. 5☐ Welded Surface _____ ft.

3☐ Plastic 6☒ Stainless Drive Shoe? Yes___ No___

2 in. to 10 ft. Weight _____ lbs./ft.

_____ in. to _____ ft. Weight _____ lbs./ft.

_____ in. to _____ ft. Weight _____ lbs./ft.

HOLE DIAM.: 7 in. to 20 ft.; ___ in. to ___

9. SCREEN

Make: Johnson

Type: Stainless Dia. 2"

Slot/Gauze: .010 Length: 10'

Set between 10 ft. and 20 ft.

Or open hole from _____ ft. to _____ ft.

FITTINGS:

10. STATIC WATER LEVEL: 14.0 ft. ☐ below ☐ above land surface Date Measured 6-5-89

11. PUMPING LEVEL (below land surface)

_____ ft. after _____ hrs. pumping _____ g.p.m.

_____ ft. after _____ hrs. pumping _____ g.p.m.

12. HEAD WELL COMPLETION

1☐ Pitless adapter, manufacturer _____ model _____

2☐ Basement offset 3☐ At least 12" above ground

4☐ Plastic casing protection _____

13. WELL GROUTED?

☒ Yes ☐ No

1☒ Neat Cement 2☐ Bentonite 3☐ _____

Grout material: portland from 0 to 7 ft. cu. yds. _____

14. NEAREST SOURCES OF POSSIBLE CONTAMINATION

_____ feet _____ direction _____ type

Well disinfected upon completion? ☐ Yes ☐ No

15. PUMP

Date installed _____ ☐ Not installed

Manufacturer's name _____

Model number _____ HP _____ Volts _____

Length of drop pipe _____ ft. capacity _____ g.p.m.

Material of drop pipe _____

Type: 1☐ Submersible 3☐ L.S. Turbine 5☐ Reciprocating

2☐ Jet 4☐ Centrifugal 6☐ _____

16. EXISTING WELLS

Unused well on property? ☐ Yes ☐ No

Abandoned ☐ Permanent ☐ Temporary ☐ Not sealed

17. REMARKS, ELEVATION, SOURCE OF DATA, etc.

The top of the riser pipe is at elevation 1043.71 This elevation was provided by RCM & Associates Inc.

18. WATER WELL CONTRACTORS CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Braun Engineering Testing (License Business Name) 059 (License No.)

Address: PO Box 189 St. Cloud MN 56302

Signed _____ (Authorized Representative) Date 7/18/89

Bill Donahue (Name of Driller) Date 6-6-89

IMPORTANT: 451747

5/74 30M

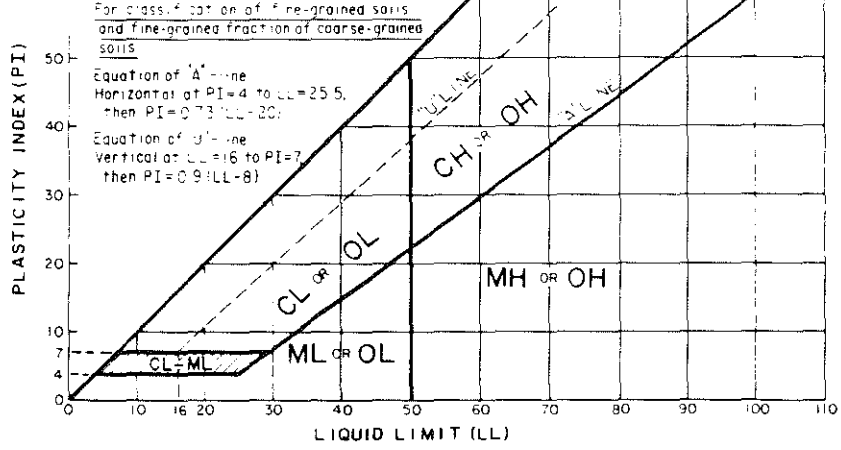
Descriptive Terminology

Designation D 2487 — 83

Standard Test Method for CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

			CRITERIA FOR ASSIGNING GROUP SYMBOLS AND GROUP NAMES USING LABORATORY TESTS [a]	SOIL CLASSIFICATION GROUP SYMBOL	SOIL CLASSIFICATION GROUP NAME [b]
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS Less than 5% fines [c]	$C_u \geq 4$ and $1 \leq C_c \leq 3$ [e]	GW	Well-graded gravel [f]
			$C_u < 4$ and/or $1 > C_c > 3$ [e]	GP	Poorly graded gravel [f]
		GRAVELS WITH FINES More than 12% fines [c]	Fines classify as ML or MH	GM	Silty gravel [f,g,h]
			Fines classify as CL or CH	GC	Clayey gravel [f,g,h]
	SANDS 50% or more of coarse fraction passes No. 4 sieve	CLEAN SANDS Less than 5% fines [d]	$C_u \geq 6$ and $1 \leq C_c \leq 3$ [e]	SW	Well-graded sand [i]
			$C_u < 6$ and/or $1 > C_c > 3$ [e]	SP	Poorly graded sand [i]
		SANDS WITH FINES More than 12% fines [d]	Fines classify as ML or MH	SM	Silty sand [g,h,i]
			Fines classify as CL or CH	SC	Clayey sand [g,h,i]
FINE-GRAINED SOILS 50% or more passed the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50%	inorganic	PI > 7 and plots on or above "A" line [j]	CL	Lean clay [k,l,m]
			PI < 4 or plots below "A" line [j]	ML	Silt [k,l,m]
		organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [k,l,m,n] / Organic silt [k,l,m,o]
	SILTS AND CLAYS Liquid limit 50% or more	inorganic	PI plots on or above "A" line	CH	Fat clay [k,l,m]
			PI plots below "A" line	MH	Elastic silt [k,l,m]
		organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [k,l,m,p] / Organic silt [k,l,m,q]
Highly organic soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

a. Based on the material passing the 3-in (75-mm) sieve.
b. If field sample contained cobbles and/or boulders, add "with cobbles and/or boulders" to group name.
c. Gravels with 5 to 12% fines require dual symbols
   GW-GM well graded gravel with silt
   GW-GC well graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
d. Sands with 5 to 12% fines require dual symbols
   SW-SM well graded sand with silt
   SW-SC well graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
e. $C_u = D_{60}/D_{10}$ $\quad C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
f. If soil contains ≥ 15% sand, add "with sand" to group name.
g. If fines classify as CL-ML, use dual symbol GC-GM, SC-SM.
h. If fines are organic, add "with organic fines" to group name.
i. If soil contains ≥ 15% gravel, add "with gravel" to group name.
j. If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
m. If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
n. PI ≥ 4 and plots on or above "A" line.
o. PI < 4 or plots below "A" line.
p. PI plots on or above "A" line.
q. PI plots below "A" line.



LABORATORY TESTS

DD	Dry Density, pcf	OC	Organic Content, %
WD	Wet Density, pcf	S	Percent of Saturation, %
MC	Natural Moisture Content, %	SG	Specific Gravity
LL	Liquid Limit, %	C	Cohesion
PL	Plastic Limit, %	Ø	Angle of Internal Friction
PI	Plasticity Index, %	qu	Unconfined Compressive Strength

PARTICLE SIZE IDENTIFICATION

Boulders	over 12"
Cobbles	3" to 12"
Gravel	
Coarse	¾" — 3"
Fine	No. 4 — ¾"
Sand	
Coarse	No. 4 — No. 10
Medium	No. 10 — No. 40
Fine	No. 40 — No. 200
Silt	No. 200 — .005 mm
Clay	less than .005 mm

RELATIVE DENSITY OF COHESIONLESS SOILS

very loose	0 — 4 B
loose	5 — 10 B
medium dense	11 — 30 B
dense	31 — 50 B
very dense	50+ B

CONSISTENCY OF COHESIVE SOILS

very soft	0 — 1 B
soft	2 — 3 B
rather soft	4 — 5 B
medium	6 — 8 B
rather stiff	9 — 12 B
stiff	13 — 16 B
very stiff	17 — 30 B
hard	30+ B

DRILLING NOTES

Standard penetration test borings were advanced by 3¼" or 6 I.D. hollow-stem augers unless noted otherwise. Jetting water w used to clean out auger prior to sampling only where indicated logs. Standard penetration test borings are designated by t prefix "ST" (Split Tube).

Power auger borings were advanced by 4" or 6" diamet continuous-flite, solid stem augers. Soil classification and stra depths are inferred from disturbed samples augered to the surfa and are therefore somewhat approximate. Power auger borin are designated by the prefix "B".

Hand probings were advanced manually with a 1½" diamet probe and are limited to the depth from which the probe can manually withdrawn. Hand probings are indicated by the pre "H".

SAMPLING — All samples are taken with the standard 2" O. split tube sampler, except where noted. TW indicates thin-w (undisturbed) sample.

BPF — Numbers indicate blows per foot recorded in standa penetration test, also known as "N" value. The sampler is set into undisturbed soil below the hollow-stem auger. Drivi resistances are then counted for second and third 6" incremer and added to get BPF. Where they differ significantly, they a reported in the following form — 2/12 for the second and third increments respectively.

WH — WH indicates that sampler penetrated soil under weight hammer and rods alone, driving not required.

NOTE — All tests run in accordance with applicable AST standards.

BRAUN

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

WCI Freezer Division
701 33rd Avenue North
St. Cloud, MN 56303

July 27, 1989
PACE Project Number: 890517201

Attn: Mr. Dick Clute

Subsurface Invest.

Date Sample(s) Collected: 06/05/89
Date Sample(s) Received: 06/12/89

PACE Sample Number:			194490	
			B-1	
Parameter	Units	MDL	9.0'-10.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	2900	06/21/89
Antimony	mg/kg	10	11	06/26/89
Arsenic	mg/kg	1.3	ND	06/29/89
Barium	mg/kg	5.0	39	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.42	06/21/89
Calcium	mg/kg	2.5	16300	07/06/89
Chromium	mg/kg	2.5	13	06/21/89
Cobalt	mg/kg	1.3	8.4	06/21/89
Copper	mg/kg	0.25	7.4	06/21/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	12200	06/20/89
Lead	mg/kg	2.5	5.7	06/20/89
Magnesium	mg/kg	2.5	7100	06/21/89
Manganese	mg/kg	0.25	380	06/20/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	11	06/20/89
Potassium	mg/kg	2.5	240	06/23/89
Selenium	mg/kg	3.1	ND	07/05/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	56	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	17	06/21/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194490 B-1	
Parameter	Units	MDL	9.0'-10.5'	DATE ANALYZED
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	8.1	07/06/89

MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194500 B-1	
Parameter	Units	MDL	11.5-13.0'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1500	06/21/89
Antimony	mg/kg	10	12	06/26/89
Arsenic	mg/kg	1.3	2.9	06/29/89
Barium	mg/kg	10	22	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.48	06/21/89
Calcium	mg/kg	2.5	25700	07/06/89
Chromium	mg/kg	2.5	7.7	06/21/89
Cobalt	mg/kg	1.3	8.2	06/21/89
Copper	mg/kg	0.25	8.0	06/21/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	9600	06/20/89
Lead	mg/kg	2.5	8.2	06/20/89
Magnesium	mg/kg	2.5	11800	06/21/89
Manganese	mg/kg	0.25	200	06/20/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	8.6	06/20/89
Potassium	mg/kg	2.5	210	06/23/89
Selenium	mg/kg	3.1	ND	07/05/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	38	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	14	06/21/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	5.7	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194510 B-1	
Parameter	Units	MDL	14.0-15.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1500	06/21/89
Antimony	mg/kg	10	14	06/26/89
Arsenic	mg/kg	1.3	2.1	06/29/89
Barium	mg/kg	25	44	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.50	06/21/89
Calcium	mg/kg	2.5	39000	07/06/89
Chromium	mg/kg	2.5	8.7	06/21/89
Cobalt	mg/kg	1.3	7.8	06/21/89
Copper	mg/kg	0.25	7.6	06/21/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	6700	06/20/89
Lead	mg/kg	2.5	8.6	06/20/89
Magnesium	mg/kg	2.5	9800	06/21/89
Manganese	mg/kg	0.25	170	06/20/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	7.2	06/20/89
Potassium	mg/kg	2.5	200	06/23/89
Selenium	mg/kg	3.1	ND	07/05/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	39	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	12	06/21/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	12.8	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194520 B-1	
Parameter	Units	MDL	16.5'18'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1300	06/21/89
Antimony	mg/kg	10	15	06/26/89
Arsenic	mg/kg	1.3	ND	06/29/89
Barium	mg/kg	10	25	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.32	06/26/89
Calcium	mg/kg	2.5	38300	07/06/89
Chromium	mg/kg	2.5	7.6	06/21/89
Cobalt	mg/kg	1.3	6.9	06/21/89
Copper	mg/kg	0.25	6.0	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	5400	07/10/89
Lead	mg/kg	2.5	8.0	06/26/89
Magnesium	mg/kg	2.5	11900	06/21/89
Manganese	mg/kg	0.25	190	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	6.6	06/28/89
Potassium	mg/kg	2.5	160	06/23/89
Selenium	mg/kg	3.1	ND	07/05/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	42	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	9.4	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	10.0	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194520 B-1	
Parameter	Units	MDL	16.5'18'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194520 B-1	
Parameter	Units	MDL	16.5'18'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194530 B-1	
Parameter	Units	MDL	19.0-20.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1400	06/21/89
Antimony	mg/kg	10	13	06/26/89
Arsenic	mg/kg	1.3	ND	06/29/89
Barium	mg/kg	25	ND	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.28	06/26/89
Calcium	mg/kg	2.5	28300	07/06/89
Chromium	mg/kg	2.5	9.2	06/21/89
Cobalt	mg/kg	1.3	6.0	06/21/89
Copper	mg/kg	0.25	6.4	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	5300	07/10/89
Lead	mg/kg	2.5	7.3	06/26/89
Magnesium	mg/kg	2.5	8300	06/21/89
Manganese	mg/kg	0.25	340	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	8.6	06/28/89
Potassium	mg/kg	2.5	220	06/23/89
Selenium	mg/kg	3.1	ND	07/05/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	40	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	10	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	12.1	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194530 B-1	
Parameter	Units	MDL	19.0-20.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194530 B-1	
Parameter	Units	MDL	19.0-20.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

Mr. Dick Clute

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194540 B-2	
Parameter	Units	MDL	9'-10.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	4900	06/21/89
Antimony	mg/kg	10	14	06/26/89
Arsenic	mg/kg	0.25	2.8	07/05/89
Barium	mg/kg	10	26	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.45	06/26/89
Calcium	mg/kg	2.5	15000	07/06/89
Chromium	mg/kg	2.5	16	06/21/89
Cobalt	mg/kg	1.3	9.6	06/21/89
Copper	mg/kg	0.25	14	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	10600	07/10/89
Lead	mg/kg	2.5	11	06/26/89
Magnesium	mg/kg	2.5	7600	06/21/89
Manganese	mg/kg	0.25	360	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	14	06/28/89
Potassium	mg/kg	2.5	400	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	57	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	30	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	6.0	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194540	
			B-2	
Parameter	Units	MDL	9'-10.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194540 B-2	
Parameter	Units	MDL	9'-10.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194550 B-2	
Parameter	Units	MDL	11.5'-13'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	4000	06/21/89
Antimony	mg/kg	10	18	06/26/89
Arsenic	mg/kg	0.25	1.6	07/05/89
Barium	mg/kg	25	76	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.50	06/26/89
Calcium	mg/kg	2.5	41700	07/06/89
Chromium	mg/kg	2.5	12	06/21/89
Cobalt	mg/kg	1.3	12	06/21/89
Copper	mg/kg	0.25	17	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	10200	07/10/89
Lead	mg/kg	2.5	16	06/26/89
Magnesium	mg/kg	2.5	19000	06/21/89
Manganese	mg/kg	0.25	490	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	12	06/28/89
Potassium	mg/kg	2.5	520	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	89	06/23/89
Thallium	mg/kg	10	12	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	25	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	7.6	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194560	
			B-2	
Parameter	Units	MDL	14'-15.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1100	06/21/89
Antimony	mg/kg	10	15	06/26/89
Arsenic	mg/kg	0.25	0.27	07/05/89
Barium	mg/kg	25	ND	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	ND	06/26/89
Calcium	mg/kg	2.5	27100	07/06/89
Chromium	mg/kg	2.5	8.0	06/21/89
Cobalt	mg/kg	1.3	6.0	06/21/89
Copper	mg/kg	0.25	7.2	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	4100	07/10/89
Lead	mg/kg	2.5	7.0	06/26/89
Magnesium	mg/kg	2.5	9600	06/21/89
Manganese	mg/kg	0.25	170	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	8.2	06/28/89
Potassium	mg/kg	2.5	130	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	15	06/23/89
Sodium	mg/kg	2.5	35	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	9.3	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	8.9	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194570	
			B-2	
Parameter	Units	MDL	16.5'-18'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	2700	06/21/89
Antimony	mg/kg	10	18	06/26/89
Arsenic	mg/kg	0.25	0.94	07/05/89
Barium	mg/kg	25	ND	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.35	06/26/89
Calcium	mg/kg	2.5	51500	07/06/89
Chromium	mg/kg	2.5	16	06/21/89
Cobalt	mg/kg	1.3	10	06/21/89
Copper	mg/kg	0.25	9.6	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	9100	07/10/89
Lead	mg/kg	2.5	11	06/26/89
Magnesium	mg/kg	2.5	13200	06/21/89
Manganese	mg/kg	0.25	260	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	15	06/28/89
Potassium	mg/kg	2.5	220	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	48	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	22	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	13.3	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

Mr. Dick Clute

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194580 B-2	
Parameter	Units	MDL	19'-20.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	810	06/21/89
Antimony	mg/kg	10	ND	06/26/89
Arsenic	mg/kg	0.25	ND	07/05/89
Barium	mg/kg	5.0	17	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	ND	06/26/89
Calcium	mg/kg	2.5	23600	07/06/89
Chromium	mg/kg	2.5	8.2	06/21/89
Cobalt	mg/kg	1.3	4.9	06/21/89
Copper	mg/kg	0.25	5.2	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	3300	07/10/89
Lead	mg/kg	2.5	5.4	06/26/89
Magnesium	mg/kg	2.5	5500	07/11/89
Manganese	mg/kg	0.25	150	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	6.3	06/28/89
Potassium	mg/kg	2.5	120	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	44	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	7.7	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	10.7	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194580 B-2	
Parameter	Units	MDL	19'-20.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194580 B-2	
Parameter	Units	MDL	19'-20.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194590	
			B-2	
Parameter	Units	MDL	20.5'-22'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	3900	06/21/89
Antimony	mg/kg	10	14	06/26/89
Arsenic	mg/kg	0.25	1.3	07/05/89
Barium	mg/kg	5.0	36	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.28	06/26/89
Calcium	mg/kg	2.5	9000	07/06/89
Chromium	mg/kg	2.5	14	06/21/89
Cobalt	mg/kg	1.3	8.4	06/21/89
Copper	mg/kg	0.25	14	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	9800	07/10/89
Lead	mg/kg	2.5	7.1	06/26/89
Magnesium	mg/kg	2.5	4200	06/21/89
Manganese	mg/kg	0.25	240	07/10/89
Mercury	mg/kg	0.02	ND	06/16/89
Nickel	mg/kg	1.3	12	06/28/89
Potassium	mg/kg	2.5	1400	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	83	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	21	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	8.8	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194610 B-3	
Parameter	Units	MDL	9'-10.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	2100	06/21/89
Antimony	mg/kg	10	16	06/26/89
Arsenic	mg/kg	0.25	2.7	07/05/89
Barium	mg/kg	5.0	24	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.30	06/26/89
Calcium	mg/kg	2.5	27200	07/06/89
Chromium	mg/kg	2.5	7.0	06/21/89
Cobalt	mg/kg	1.3	9.3	06/21/89
Copper	mg/kg	0.25	9.7	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	10500	07/10/89
Lead	mg/kg	2.5	8.6	06/26/89
Magnesium	mg/kg	2.5	9500	06/21/89
Manganese	mg/kg	0.25	390	07/10/89
Mercury	mg/kg	0.02	ND	06/22/89
Nickel	mg/kg	1.3	10	06/28/89
Potassium	mg/kg	2.5	250	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	36	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	18	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	4.1	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194620	
			B-3	
Parameter	Units	MDL	11.5'-13'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1200	06/21/89
Antimony	mg/kg	10	ND	06/26/89
Arsenic	mg/kg	0.25	ND	07/05/89
Barium	mg/kg	5.0	12	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	ND	06/26/89
Calcium	mg/kg	2.5	22800	07/06/89
Chromium	mg/kg	2.5	6.0	06/21/89
Cobalt	mg/kg	1.3	7.6	06/21/89
Copper	mg/kg	0.25	4.5	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	7500	07/10/89
Lead	mg/kg	2.5	6.7	06/26/89
Magnesium	mg/kg	2.5	12800	06/21/89
Manganese	mg/kg	0.25	82	07/10/89
Mercury	mg/kg	0.02	ND	06/22/89
Nickel	mg/kg	1.3	7.6	06/28/89
Potassium	mg/kg	2.5	170	07/05/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	120	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	11	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	4.4	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194630	
			B-3	
Parameter	Units	MDL	14-'-15.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1700	06/21/89
Antimony	mg/kg	10	12	06/26/89
Arsenic	mg/kg	0.25	0.44	07/05/89
Barium	mg/kg	5.0	14	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	ND	06/26/89
Calcium	mg/kg	2.5	20600	07/06/89
Chromium	mg/kg	2.5	8.1	06/21/89
Cobalt	mg/kg	1.3	7.6	06/21/89
Copper	mg/kg	0.25	6.5	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	7100	07/10/89
Lead	mg/kg	2.5	6.2	06/26/89
Magnesium	mg/kg	2.5	9600	06/21/89
Manganese	mg/kg	0.25	120	07/10/89
Mercury	mg/kg	0.02	0.03	06/22/89
Nickel	mg/kg	1.3	8.3	06/28/89
Potassium	mg/kg	2.5	210	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	52	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	18	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	10.4	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194640	
			B-3	
Parameter	Units	MDL	16.5'-18'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	3500	06/21/89
Antimony	mg/kg	10	11	06/26/89
Arsenic	mg/kg	0.25	0.69	07/05/89
Barium	mg/kg	5.0	6.5	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.32	06/26/89
Calcium	mg/kg	2.5	16200	07/06/89
Chromium	mg/kg	2.5	11	06/21/89
Cobalt	mg/kg	1.3	12	06/21/89
Copper	mg/kg	0.25	8.7	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	14700	07/10/89
Lead	mg/kg	2.5	6.2	06/26/89
Magnesium	mg/kg	2.5	10600	06/21/89
Manganese	mg/kg	0.25	120	07/10/89
Mercury	mg/kg	0.02	ND	06/22/89
Nickel	mg/kg	1.3	13	06/28/89
Potassium	mg/kg	2.5	260	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	100	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	20	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	18.5	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194650	
			B-3	
Parameter	Units	MDL	19'-20.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	2000	06/21/89
Antimony	mg/kg	10	12	06/26/89
Arsenic	mg/kg	0.25	0.28	07/05/89
Barium	mg/kg	5.0	12	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	ND	06/26/89
Calcium	mg/kg	2.5	7400	07/06/89
Chromium	mg/kg	2.5	8.8	06/21/89
Cobalt	mg/kg	1.3	7.2	06/21/89
Copper	mg/kg	0.25	7.7	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/27/89
Iron	mg/kg	1.3	8000	07/10/89
Lead	mg/kg	2.5	4.8	06/26/89
Magnesium	mg/kg	2.5	4800	06/21/89
Manganese	mg/kg	0.25	90	07/10/89
Mercury	mg/kg	0.02	ND	06/22/89
Nickel	mg/kg	1.3	8.5	06/28/89
Potassium	mg/kg	2.5	150	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	110	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	15	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	15.9	07/24/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194660	
			B-3	
Parameter	Units	MDL	21.5'-23'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1300	06/21/89
Antimony	mg/kg	10	12	06/26/89
Arsenic	mg/kg	0.25	ND	07/05/89
Barium	mg/kg	5.0	19	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	0.28	06/26/89
Calcium	mg/kg	2.5	23600	07/06/89
Chromium	mg/kg	2.5	8.8	06/21/89
Cobalt	mg/kg	1.3	7.6	06/21/89
Copper	mg/kg	0.25	7.0	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/29/89
Iron	mg/kg	1.3	6900	07/10/89
Lead	mg/kg	2.5	6.1	06/26/89
Magnesium	mg/kg	2.5	9500	06/21/89
Manganese	mg/kg	0.25	210	07/10/89
Mercury	mg/kg	0.02	ND	06/22/89
Nickel	mg/kg	1.3	7.9	06/28/89
Potassium	mg/kg	2.5	210	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	98	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	11	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	11.1	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194660 B-3	
Parameter	Units	MDL	21.5'-23'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194660	
			B-3	
Parameter	Units	MDL	21.5'-23'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194670	
			B-3	
Parameter	Units	MDL	24'-25.5'	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/kg	13	1300	06/21/89
Antimony	mg/kg	10	11	06/26/89
Arsenic	mg/kg	0.25	ND	07/05/89
Barium	mg/kg	5.0	24	06/22/89
Beryllium	mg/kg	0.50	ND	07/07/89
Cadmium	mg/kg	0.25	ND	06/26/89
Calcium	mg/kg	2.5	24000	07/06/89
Chromium	mg/kg	2.5	5.7	06/21/89
Cobalt	mg/kg	1.3	5.9	06/21/89
Copper	mg/kg	0.25	5.4	06/27/89
Cyanide, Total	mg/kg	0.50	ND	06/29/89
Iron	mg/kg	1.3	5200	07/10/89
Lead	mg/kg	2.5	5.9	06/26/89
Magnesium	mg/kg	2.5	8600	06/21/89
Manganese	mg/kg	0.25	250	07/10/89
Mercury	mg/kg	0.02	ND	06/22/89
Nickel	mg/kg	1.3	7.0	06/28/89
Potassium	mg/kg	2.5	190	06/23/89
Selenium	mg/kg	3.1	ND	07/06/89
Silver	mg/kg	4.0	ND	06/23/89
Sodium	mg/kg	2.5	93	06/23/89
Thallium	mg/kg	10	ND	07/05/89
Vanadium	mg/kg	13	ND	06/30/89
Zinc	mg/kg	2.5	10	06/28/89
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	10.5	07/06/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194670 B-3	
Parameter	Units	MDL	24'-25.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194670	
			B-3	
Parameter	Units	MDL	24'-25.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194680	
			B-4	
Parameter	Units	MDL	0-1.5'	DATE ANALYZED
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	7.2	07/06/89
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194680 B-4	
Parameter	Units	MDL	0-1.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

REPORT OF LABORATORY ANALYSIS

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194690	
			B-4	
Parameter	Units	MDL	1.5'-3'	DATE ANALYZED
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	4.3	07/06/89
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194690	
			B-4	
Parameter	Units	MDL	1.5'-3'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194760	
			B-5	
Parameter	Units	MDL	1.5'-3'	DATE ANALYZED
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	5.9	07/06/89
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194760	
			B-5	
Parameter	Units	MDL	1.5'-3'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194770 B-5	
Parameter	Units	MDL	4'-5.5'	DATE ANALYZED
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Moisture content	%	1.0	5.7	07/06/89
GCMS FOR VOLATILE ORGANICS-8240				
Chloromethane	mg/kg	0.6	ND	06/14/89
Bromomethane	mg/kg	1.0	ND	06/14/89
Vinyl chloride	mg/kg	0.7	ND	06/14/89
Chloroethane	mg/kg	0.5	ND	06/14/89
Methylene chloride	mg/kg	1.2	ND	06/14/89
Acetone	mg/kg	1.2	ND	06/14/89
Carbon disulfide	mg/kg	0.6	ND	06/14/89
1,1-Dichloroethylene	mg/kg	0.7	ND	06/14/89
1,1-Dichloroethane	mg/kg	0.5	ND	06/14/89
Trans-1,2-dichloroethylene	mg/kg	0.5	ND	06/14/89
Chloroform	mg/kg	0.5	ND	06/14/89
1,2-Dichloroethane	mg/kg	0.5	ND	06/14/89
2-Butanone (MEK)	mg/kg	1.2	ND	06/14/89
1,1,1-Trichloroethane	mg/kg	0.5	ND	06/14/89
Carbon tetrachloride	mg/kg	0.5	ND	06/14/89
Vinyl acetate	mg/kg	1.2	ND	06/14/89
Bromodichloromethane	mg/kg	0.5	ND	06/14/89
1,1,2,2-Tetrachloroethane	mg/kg	0.3	ND	06/14/89
1,2-Dichloropropane	mg/kg	0.4	ND	06/14/89
Trans-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
Trichloroethylene	mg/kg	0.5	ND	06/14/89
Dibromochloromethane	mg/kg	0.4	ND	06/14/89
1,1,2-Trichloroethane	mg/kg	0.4	ND	06/14/89
Benzene	mg/kg	0.3	ND	06/14/89
Cis-1,3-dichloropropene	mg/kg	0.3	ND	06/14/89
2-Chloroethylvinyl ether	mg/kg	1.2	ND	06/14/89
Bromoform	mg/kg	0.5	ND	06/14/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

July 27, 1989
PACE Project Number: 890517201

PACE Sample Number:			194770 B-5	
Parameter	Units	MDL	4'-5.5'	DATE ANALYZED
ORGANIC ANALYSIS				
GCMS FOR VOLATILE ORGANICS-8240				
2-Hexanone	mg/kg	1.2	ND	06/14/89
4-Methyl-2-pentanone (MIBK)	mg/kg	1.2	ND	06/14/89
Tetrachloroethylene	mg/kg	1.0	ND	06/14/89
Toluene	mg/kg	0.5	ND	06/14/89
Chlorobenzene	mg/kg	0.4	ND	06/14/89
Ethyl benzene	mg/kg	0.5	ND	06/14/89
Styrene	mg/kg	0.6	ND	06/14/89
Xylenes, (total)	mg/kg	0.6	ND	06/14/89

ND Not detected at or above the MDL.
MDL Method Detection Limit

The analyses of soil samples were performed 'as received' and do not reflect analyses on a dry weight basis unless indicated.

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my direct supervision.

Thomas L. Halverson
Inorganic Chemistry Manager

Dennis R. Seeger
Organic Chemistry Manager

pace laboratories, inc.

NO. 5101

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client WCI Freezer Division
Address 701 33rd Ave N
St Cloud, MN 56303
Phone

Report To:
Bill To:
P.O. # / Billing Reference
Project Name / No.

Pace Client No. 019002
Pace Project Manager DA Conway
Pace Project No. 890517.201
*Requested Due Date:

Sampled By (PRINT): Erik Forggard
Sampler Signature
Date Sampled 6-7-89

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Hold	8240	REMARKS
1	B-5 1½-3'		Soil	19476	3	1			2		✓	
2	B-5 4-5½			77	3	1			2		✓	
3	B-5 6½-8			78	3	1			2	✓		
4	B-5 9-10½			79	3	1			2	✓		
5	B-5 11½-13			80	3	1			2	✓		
6	B-5 14-15½			81	3	1			2	✓		
7	B-5 16½-18			82	2				2	✓		
8	B-5 19-20½			83	3	1			2	✓		

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					Erik Forggard / PACE	[illegible]	6/12/89	

Additional Comments

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

pace laboratories, inc.

NO. 5100

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: WCI Frozen Division
Address: 701 33rd Ave. N
St Cloud, MN 56303
Phone:

Report To:
Bill To:
P.O. # / Billing Reference:
Project Name / No.:

Pace Client No. 019002
Pace Project Manager: DAConnor
Pace Project No: 90517.201
*Requested Due Date:

Sampled By (PRINT): Erik Forgaard
Sampler Signature: Erik Forgaard
Date Sampled: 6-7-89

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Hold 8240	REMARKS
1	B-4 0-1½		Soil	194108	3	1			2	✓	
2	B-4 1½-3			69	3	1			2	✓	
3	B-4 4-5½			70	3	1			2	✓	
4	B-4 6½-8			71	3	1			2	✓	
5	B-4 9-10½			72	3	1			2	✓	
6	B-4 11½-13			73	2				2	✓	
7	B-4 13-14½			74	3	1			2	✓	
8	B-4 15½-17			75	3	1			2	✓	

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

Additional Comments

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	Erik Forgaard/PACE	Nye	6/12/89	

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

pace laboratories, inc.

NO. 5467

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: WCI Freezer Division
Address: 701 33rd Ave N
St Cloud, MN 56303
Phone:

Report To:
Bill To:
P.O. # / Billing Reference:
Project Name / No.:

Pace Client No. 019002
Pace Project Manager: D.A. Conner
Pace Project No. 890517.201
*Requested Due Date:

Sampled By (PRINT): Erik Torgaard
Sampler Signature:
Date Sampled: 6-8-89

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Hold	8240	RAS metals	CN	REMARKS
1	B-3 6½-8'		Soil	A1460	3	1			2	✓				
2	B-3 9-10½			61	3	1			2		✓	✓		
3	B-3 11½-13			62	3	1			2		✓	✓		
4	B-3 14-15½			63	3	1			2		✓	✓		
5	B-3 16½-18			64	3	1			2		✓	✓		
6	B-3 19-20½			65	3	1			2		✓	✓		
7	B-3 21½-23			66	3	1			2	✓	✓	✓		
8	B-3 24-25½			67	3	1			2	✓	✓	✓		

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	Erik Torgaard/PACE	Nyc	6/8/89	

Additional Comments:
See attached list of metals

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

pace laboratories, inc.

NO. 5466

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: WCI Freezer Division
Address: 701 33rd Ave. N
St. Cloud, MN 56303
Phone:

Report To:
Bill To:
P.O. # / Billing Reference:
Project Name / No.:

Pace Client No. 019200
Pace Project Manager: DComeau
Pace Project No. 890517.201
*Requested Due Date:

Sampled By (PRINT): Erik Forgaard
Sampler Signature: Erik Forgaard
Date Sampled: 6/8-89

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Hold	8240	BAS Metals	CN	REMARKS
1	B-2 9-10½'		Soil	19454	3	1			2	✓	✓	✓		
2	B-2 11½-13'			55	3	1			2		✓	✓		
3	B-2 14-15½'			56	3	1			2		✓	✓		
4	B-2 16½-18'			57	3	1			2		✓	✓		
5	B-2 19-20½'			58	3	1			2	✓	✓	✓		
6	B-2 20½-22			59	3	1			2		✓	✓		
7														
8														

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					Ent Lynd / PACE		6/12/89	

Additional Comments:
See Attached list of metals

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

pace laboratories, inc.

NO. 5442

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: WCI Freezer Division
Address: 701 33rd Ave N
St Cloud, MN 56303
Phone: Jim Postiglione

Report To:
Bill To:
P.O. # / Billing Reference
Project Name / No.: Subsurface

Pace Client No. 019002
Pace Project Manager: N Comeau
Pace Project No. 890517.201
*Requested Due Date:

Sampled By (PRINT):
Jim Postiglione
Sampler Signature

6-5-89
Date Sampled

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Hold	8240	RAS metals	Total CN	REMARKS
1	B-1 ~~1~~ 1½ 1.5-3.0'	10:20	Soil	19446	3	1			2	✓				
2	B-~~1~~ 4.0-5.5'	1035		47	3	1			2	✓				
3	B-1 6.5-8.0	1045		48	3	1			2	✓				
4	B-1 9.0-10.5	1100		49	2	1			1		✓	✓		
5	B-1 11.5-13.0	1120		50	3	1			2		✓	✓		
6	B-1 14.0-15.5	1140		51	3	1			2		✓	✓		
7	B-1 ~~15~~ 16½ - ~~15~~ 18	1150		52	3	1			2	✓	✓	✓		
8	B-1 19.0-20.5	1205	↓	53	3	1			2	✓	✓	✓		

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
1-8	David A Comeau/PACE	MJC/PACE	6/5/89	

Additional Comments
See attached list of Metals

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

pace laboratories, inc

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

WCI Freezer Division
701 33rd Avenue North
St. Cloud, MN 56303

September 20, 1989
PACE Project Number: 890822200

Attn: Mr. Dick Clute

August Well Sampling

Parameter	Units	MDL	PACE Sample Number: 304070 Date Collected: 08/23/89 Date Received: 08/23/89 MW-1	DATE ANALYZED
FIELD PARAMETERS				
GROUND WATER FIELD PARAMETERS				
Specific Conductivity (Field)	umhos/cm2	10	650	08/22/89
pH (Field)	units	0.1	7.1	08/22/89
Static Water (Elevation)	ft	0.01	1029.54	08/22/89
Temperature (Field)	Degrees C	0.5	11.0	08/22/89
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/L	0.5	ND	09/11/89
Arsenic	mg/L	0.002	ND	09/12/89
Barium	mg/L	0.2	ND	09/07/89
Cadmium	mg/L	0.0010	ND	09/12/89
Chromium	mg/L	0.001	ND	09/11/89
Cobalt	mg/L	0.05	ND	09/05/89
Copper	mg/L	0.01	ND	08/31/89
Cyanide, Total	mg/L	0.01	ND	08/25/89
Iron	mg/L	0.05	0.05	09/01/89
Lead	mg/L	0.001	ND	09/06/89
Magnesium	mg/L	0.10	33	09/11/89
Manganese	mg/L	0.01	0.03	09/01/89
Mercury	mg/L	0.0002	ND	09/08/89
Nickel	mg/L	0.05	ND	08/31/89
Potassium	mg/L	0.10	2.1	09/12/89
Selenium	mg/L	0.050	ND	09/12/89
Silver	mg/L	0.04	ND	08/25/89
Sodium	mg/L	0.10	6.0	09/12/89
Thallium	mg/L	0.4	ND	09/10/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	304070 08/23/89 08/23/89 MW-1	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Zinc	mg/L	0.10	ND	08/30/89
ORGANIC ANALYSIS				
VOLATILE ORGANICS-624				
Benzene	ug/L	2.7	ND	08/31/89
Bromodichloromethane	ug/L	4.3	ND	08/31/89
Bromoform	ug/L	4.0	ND	08/31/89
Bromomethane	ug/L	7.1	ND	08/31/89
Carbon tetrachloride	ug/L	3.8	ND	08/31/89
Chlorobenzene	ug/L	2.5	ND	08/31/89
Chloroethane	ug/L	4.1	ND	08/31/89
2-Chloroethylvinyl ether	ug/L	6.3	ND	08/31/89
Chloroform	ug/L	4.5	ND	08/31/89
Chloromethane	ug/L	4.7	ND	08/31/89
Dibromochloromethane	ug/L	3.0	ND	08/31/89
1,2-Dichlorobenzene	ug/L	9.6	ND	08/31/89
1,3-Dichlorobenzene	ug/L	9.5	ND	08/31/89
1,4-Dichlorobenzene	ug/L	12	ND	08/31/89
1,1-Dichloroethane	ug/L	4.4	ND	08/31/89
1,2-Dichloroethane	ug/L	3.9	ND	08/31/89
1,1-Dichloroethylene	ug/L	6.5	ND	08/31/89
Trans-1,2-dichloroethylene	ug/L	3.7	ND	08/31/89
1,2-Dichloropropane	ug/L	3.0	ND	08/31/89
Cis-1,3-dichloropropene	ug/L	1.4	ND	08/31/89
Trans-1,3-dichloropropene	ug/L	2.1	ND	08/31/89
Ethyl benzene	ug/L	4.2	ND	08/31/89
Methylene chloride	ug/L	10	ND	08/31/89
1,1,2,2-Tetrachloroethane	ug/L	1.8	ND	08/31/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

REPORT OF LABORATORY ANALYSIS

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	304070 08/23/89 08/23/89 MW-1	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
ORGANIC ANALYSIS				
VOLATILE ORGANICS-624				
Tetrachloroethylene	ug/L	7.1	ND	08/31/89
Toluene	ug/L	4.3	ND	08/31/89
1,1,1-Trichloroethane	ug/L	4.3	ND	08/31/89
1,1,2-Trichloroethane	ug/L	3.1	ND	08/31/89
Trichloroethylene	ug/L	3.5	ND	08/31/89
Trichlorofluoromethane	ug/L	5.9	ND	08/31/89
Vinyl chloride	ug/L	6.0	ND	08/31/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

REPORT OF LABORATORY ANALYSIS

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	PACE Sample Number: 304080 Date Collected: 08/23/89 Date Received: 08/23/89 MW-2	DATE ANALYZED
FIELD PARAMETERS				
GROUND WATER FIELD PARAMETERS				
Specific Conductivity (Field)	umhos/cm2	10	880	08/22/89
pH (Field)	units	0.1	7.1	08/22/89
Static Water (Elevation)	ft	0.01	1026.67	08/22/89
Temperature (Field)	Degrees C	0.5	13.5	08/22/89
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/L	0.5	ND	09/11/89
Arsenic	mg/L	0.002	0.009	09/12/89
Barium	mg/L	0.2	ND	09/07/89
Cadmium	mg/L	0.0010	ND	09/12/89
Chromium	mg/L	0.001	ND	09/11/89
Cobalt	mg/L	0.05	ND	09/05/89
Copper	mg/L	0.01	0.01	08/31/89
Cyanide, Total	mg/L	0.01	ND	08/25/89
Iron	mg/L	0.05	4.5	09/01/89
Lead	mg/L	0.001	ND	09/06/89
Magnesium	mg/L	0.10	31	09/11/89
Manganese	mg/L	0.01	1.1	09/01/89
Mercury	mg/L	0.0002	ND	09/08/89
Nickel	mg/L	0.05	ND	08/31/89
Potassium	mg/L	0.10	3.4	09/12/89
Selenium	mg/L	0.050	ND	09/12/89
Silver	mg/L	0.04	ND	08/25/89
Sodium	mg/L	0.10	32	09/12/89
Thallium	mg/L	0.4	ND	09/10/89
Zinc	mg/L	0.10	ND	08/30/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

REPORT OF LABORATORY ANALYSIS

Mr. Dick Clute
Page 5

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	PACE Sample Number: 304080 Date Collected: 08/23/89 Date Received: 08/23/89 MW-2	DATE ANALYZED
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
VOLATILE ORGANICS-624				
Benzene	ug/L	2.7	ND	08/31/89
Bromodichloromethane	ug/L	4.3	ND	08/31/89
Bromoform	ug/L	4.0	ND	08/31/89
Bromomethane	ug/L	7.1	ND	08/31/89
Carbon tetrachloride	ug/L	3.8	ND	08/31/89
Chlorobenzene	ug/L	2.5	ND	08/31/89
Chloroethane	ug/L	4.1	ND	08/31/89
2-Chloroethylvinyl ether	ug/L	6.3	ND	08/31/89
Chloroform	ug/L	4.5	ND	08/31/89
Chloromethane	ug/L	4.7	ND	08/31/89
Dibromochloromethane	ug/L	3.0	ND	08/31/89
1,2-Dichlorobenzene	ug/L	9.6	ND	08/31/89
1,3-Dichlorobenzene	ug/L	9.5	ND	08/31/89
1,4-Dichlorobenzene	ug/L	12	ND	08/31/89
1,1-Dichloroethane	ug/L	4.4	ND	08/31/89
1,2-Dichloroethane	ug/L	3.9	ND	08/31/89
1,1-Dichloroethylene	ug/L	6.5	ND	08/31/89
Trans-1,2-dichloroethylene	ug/L	3.7	ND	08/31/89
1,2-Dichloropropane	ug/L	3.0	ND	08/31/89
Cis-1,3-dichloropropene	ug/L	1.4	ND	08/31/89
Trans-1,3-dichloropropene	ug/L	2.1	ND	08/31/89
Ethyl benzene	ug/L	4.2	ND	08/31/89
Methylene chloride	ug/L	10	ND	08/31/89
1,1,2,2-Tetrachloroethane	ug/L	1.8	ND	08/31/89
Tetrachloroethylene	ug/L	7.1	ND	08/31/89
Toluene	ug/L	4.3	ND	08/31/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

REPORT OF LABORATORY ANALYSIS

Mr. Dick Clute
Page 6

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	PACE Sample Number: 304080 Date Collected: 08/23/89 Date Received: 08/23/89 MW-2	DATE ANALYZED
ORGANIC ANALYSIS				
VOLATILE ORGANICS-624				
1,1,1-Trichloroethane	ug/L	4.3	ND	08/31/89
1,1,2-Trichloroethane	ug/L	3.1	ND	08/31/89
Trichloroethylene	ug/L	3.5	ND	08/31/89
Trichlorofluoromethane	ug/L	5.9	ND	08/31/89
Vinyl chloride	ug/L	6.0	ND	08/31/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

REPORT OF LABORATORY ANALYSIS

Mr. Dick Clute
Page 7

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	PACE Sample Number: 304090 Date Collected: 08/23/89 Date Received: 08/23/89 MW-3	DATE ANALYZED
FIELD PARAMETERS				
GROUND WATER FIELD PARAMETERS				
Specific Conductivity (Field)	umhos/cm2	10	560	08/22/89
pH (Field)	units	0.1	7.2	08/22/89
Static Water (Elevation)	ft	0.01	1025.41	08/22/89
Temperature (Field)	Degrees C	0.5	16.0	08/22/89
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Aluminum	mg/L	0.5	ND	09/11/89
Arsenic	mg/L	0.002	0.005	09/12/89
Barium	mg/L	0.2	ND	09/07/89
Cadmium	mg/L	0.0010	0.0016	09/13/89
Chromium	mg/L	0.001	ND	09/11/89
Cobalt	mg/L	0.05	ND	09/05/89
Copper	mg/L	0.01	0.02	08/31/89
Cyanide, Total	mg/L	0.01	ND	08/25/89
Iron	mg/L	0.05	ND	09/01/89
Lead	mg/L	0.001	ND	09/06/89
Magnesium	mg/L	0.10	18	09/11/89
Manganese	mg/L	0.01	0.36	09/01/89
Mercury	mg/L	0.0002	ND	09/08/89
Nickel	mg/L	0.05	ND	08/31/89
Potassium	mg/L	0.10	3.1	09/12/89
Selenium	mg/L	0.050	ND	09/12/89
Silver	mg/L	0.04	ND	08/25/89
Sodium	mg/L	0.10	37	09/12/89
Thallium	mg/L	0.4	ND	09/10/89
Zinc	mg/L	0.10	ND	08/30/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

REPORT OF LABORATORY ANALYSIS

Mr. Dick Clute
Page 8

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	MW-3	DATE ANALYZED
PACE Sample Number:			304090	
Date Collected:			08/23/89	
Date Received:			08/23/89	
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
VOLATILE ORGANICS-624				
Benzene	ug/L	2.7	ND	08/31/89
Bromodichloromethane	ug/L	4.3	ND	08/31/89
Bromoform	ug/L	4.0	ND	08/31/89
Bromomethane	ug/L	7.1	ND	08/31/89
Carbon tetrachloride	ug/L	3.8	ND	08/31/89
Chlorobenzene	ug/L	2.5	ND	08/31/89
Chloroethane	ug/L	4.1	ND	08/31/89
2-Chloroethylvinyl ether	ug/L	6.3	ND	08/31/89
Chloroform	ug/L	4.5	ND	08/31/89
Chloromethane	ug/L	4.7	ND	08/31/89
Dibromochloromethane	ug/L	3.0	ND	08/31/89
1,2-Dichlorobenzene	ug/L	9.6	ND	08/31/89
1,3-Dichlorobenzene	ug/L	9.5	ND	08/31/89
1,4-Dichlorobenzene	ug/L	12	ND	08/31/89
1,1-Dichloroethane	ug/L	4.4	ND	08/31/89
1,2-Dichloroethane	ug/L	3.9	ND	08/31/89
1,1-Dichloroethylene	ug/L	6.5	ND	08/31/89
Trans-1,2-dichloroethylene	ug/L	3.7	ND	08/31/89
1,2-Dichloropropane	ug/L	3.0	ND	08/31/89
Cis-1,3-dichloropropene	ug/L	1.4	ND	08/31/89
Trans-1,3-dichloropropene	ug/L	2.1	ND	08/31/89
Ethyl benzene	ug/L	4.2	ND	08/31/89
Methylene chloride	ug/L	10	ND	08/31/89
1,1,2,2-Tetrachloroethane	ug/L	1.8	ND	08/31/89
Tetrachloroethylene	ug/L	7.1	ND	08/31/89
Toluene	ug/L	4.3	ND	08/31/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace laboratories, inc

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

Mr. Dick Clute

September 20, 1989
PACE Project Number: 890822200

Parameter	Units	MDL	304090 08/23/89 08/23/89 MW-3	DATE ANALYZED
PACE Sample Number:			304090	
Date Collected:			08/23/89	
Date Received:			08/23/89	
ORGANIC ANALYSIS				
VOLATILE ORGANICS-624				
1,1,1-Trichloroethane	ug/L	4.3	ND	08/31/89
1,1,2-Trichloroethane	ug/L	3.1	ND	08/31/89
Trichloroethylene	ug/L	3.5	ND	08/31/89
Trichlorofluoromethane	ug/L	5.9	ND	08/31/89
Vinyl chloride	ug/L	6.0	ND	08/31/89

MDL Method Detection Limit
ND Not detected at or above the MDL.

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my direct supervision.

Thomas L. Halverson
Inorganic Chemistry Manager

Dennis R. Seeger
Organic Chemistry Manager

FIELD LOG DATA SHEET
PACE Laboratories, Inc.
WELL SAMPLING

Client: WCI Project: Aug. Sampling Project #: 890822.200
Sample Site: MW-1
Well Identification and Description: (Locked X Not Locked) Key#:
ID inches 2 PVC: Steel: Stainless Steel: Other: Labeled: MW-1
Total Well Depth (from top of casing) 5.27 meters 17.28 feet Elevation: 1042.46 feet
Static Water Level (from top of casing) Before Prepumping: 3.94 meters 12.92 feet
Static Water Level (from top of casing) At Time of Sampling: 3.94 meters 12.92 feet
Static Water Elevation: 1029.54 feet Water Column: 4.36 feet One Casing Volume .70 gal

Date Prepumped: 8/23/89 Time Prepumped: 1025 Volume Prepumped: 2.6 gal
Prepumping Method Used: 2 PC SS Bailer Pump Rate: N/A gpm
Date Sampled: 8/23/89 Time Sampled: 1100 Sampling Equipment Used: Above Bailer

Sample Temperature: 11.0 °C Sample pH: 7.1 Sample Specific Conductance: 650 umho/cm2
Field Measurements Temperature Corrected: Yes X No Metals Filtered in Field: Yes X No
Weather Conditions: 70° and sunny
Observations: collected prepump
split with Metcalf and Eddy
Sample Description: silty brown/no odor
Name and Affiliation of Sampler(s) Terry J. Borgerding, PACE Laboratories, Inc.
Name and Affiliation of Inspector(s) Present: Joseph Julik, MPCA/Ken Krueger Metcalf & Ed.

STABILIZATION TEST

Time	pH	Specific Conductance (umhos/cm2)	Temp. (°C)	Cumulative Volume Removed (gallons)
1030	7.1	650	11	.90
1034	7.1	650	11	1.7
1039	7.1	650	11	2.6

FIELD LOG DATA SHEET
PACE Laboratories, Inc.
WELL SAMPLING

Client: WCI Project: Aug. Sampling Project #: 890822.200

Sample Site: MW-2

Well Identification and Description: (Locked X Not Locked) Key#:

ID inches 2 PVC: Steel: Stainless Steel: Other: Labeled: MW-2

Total Well Depth (from top of casing) 7.27 meters 23.84 feet Elevation: 1044.93 feet

Static Water Level (from top of casing) Before Prepumping: 5.57 meters 18.26 feet

Static Water Level (from top of casing) At Time of Sampling: 5.57 meters 18.26 feet

Static Water Elevation: 1026.67 feet Water Column: 5.6 feet One Casing Volume .90 gal

Date Prepumped: 8/23/89 Time Prepumped: 1128-1148 Volume Prepumped: 3.0 gal

Prepumping Method Used: 2 PC SS Bailer Pump Rate: N/A gpm

Date Sampled: 8/23/89 Time Sampled: 1200 Sampling Equipment Used: above bailer

Sample Temperature: 13.5 °C Sample pH: 7.1 Sample Specific Conductance: 880 umho/cm2

Field Measurements Temperature Corrected: Yes X No Metals Filtered in Field: Yes X No

Weather Conditions: 70° and sunny

Observations: collected prepump

split with Metcalf and Eddy

Sample Description: cloudy-not odor

Name and Affiliation of Sampler(s) Terry J. Borgerding, PACE Laboratories, Inc.

Name and Affiliation of Inspector(s) Present: Joseph Julik, MPCA/Ken Krueger Metcalf & Ed.

STABILIZATION TEST

Time	pH	Specific Conductance (umhos/cm2)	Temp. (°C)	Cumulative Volume Removed (gallons)
1132	7.1	880	13.5	1.0
1137	7.1	880	13.5	2.0
1143	7.1	880	13.5	3.0

FIELD LOG DATA SHEET
PACE Laboratories, Inc.
WELL SAMPLING

Client: WCI Project: Aug. Sampling Project #: 890822.200
Sample Site: MW-3
Well Identification and Description: (Locked X Not Locked) Key#:
ID inches 2 PVC: Steel: Stainless Steel: Other: Labeled: MW-3
Total Well Depth (from top of casing) 6.48 meters 21.25 feet Elevation: 1043.71 feet
Static Water Level (from top of casing) Before Prepumping: 5.58 meters 18.30 feet
Static Water Level (from top of casing) At Time of Sampling: 5.58 meters 18.30 feet
Static Water Elevation: 1025.41 feet Water Column: 2.95 feet One Casing Volume .48 gal

Date Prepumped: 8/23/89 Time Prepumped: 1235-1246 Volume Prepumped: 1.9 gal
Prepumping Method Used: 2 PC SS Bailer Pump Rate: N/A gpm
Date Sampled: 8/23/89 Time Sampled: 1300 Sampling Equipment Used: above bailer

Sample Temperature: 16 °C Sample pH: 7.2 Sample Specific Conductance: 560 umho/cm2
Field Measurements Temperature Corrected: Yes X No Metals Filtered in Field: Yes X No
Weather Conditions: 70° and sunny
Observations: collected prepump
split with Metcalf and Eddy
Sample Description: silty brown-no odor
Name and Affiliation of Sampler(s) Terry J. Borgerding, PACE Laboratories, Inc.
Name and Affiliation of Inspector(s) Present: Joseph Julik, MPCA/Ken Krueger Metcalf & Ed.

STABILIZATION TEST

Time	pH	Specific Conductance (umhos/cm2)	Temp. (°C)	Cumulative Volume Removed (gallons)
1239	7.2	570	16	.7
1242	7.2	560	16	1.3
1246	7.2	560	16	1.9

pace laboratories, inc.

NO. 6830

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: WC1
Address:
Phone:

Report To:
Bill To:
P.O. # / Billing Reference:
Project Name / No.: MW-3 Extra

Pace Client No.: 019002
Pace Project Manager: DAC
Pace Project No.:
*Requested Due Date: 9-13-89

Sampled By (PRINT): Terence J. Borgerding
Sampler Signature: Terence J Borgerding
Date Sampled: 8/23/89

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	Hex. Eq	ANALYSES REQUEST: BTEX-THC	Hex EX	REMARKS
1	MW-3	1330		304125	4					1	1		
2													
3													
4													
5													
6													
7													
8													

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

Additional Comments

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
1	Terence J Borgerding		8/23/89	8:20

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

pace laboratories, inc.

NO. 6829

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client WCI

Address

Phone

Report To:

Bill To:

P.O. # / Billing Reference

Project Name / No. Aug - Sampling

Pace Client No. 019002

Pace Project Manager DAC

Pace Project No. 890822.200

*Requested Due Date: 9-13-89

Sampled By (PRINT): Terence J. Borgerding

Sampler Signature: Terence J Borgerding

Date Sampled: 8/23/89

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	UNPRESERVED	H_2SO_4	HNO_3	VOA	CN	ANALYSES REQUEST: 624	TAL Metals	CN	Field Held	CN	REMARKS
1	Tr Blk			30405	3				3		/					
2	mw-1 Blk	1020		06	3				3		/					
3	mw-1	1100		07	6			1	4	1	/	/	/	/		
4	mw-2 Blk	1120		10	3				3		/					
5	mw-2	1200		08	6			1	4	1	/	/	/	/		
6	mw-3 Blk	1230		11	3				3		/					
7	mw-3	1300		09	6			1	4	1	/	/	/	/		
8																

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
1-7	Terence J Borgerding	ABB	8/23/89	8:10

Additional Comments

TAL - Metals see attached

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

RECEIVED
AUG 0 3 1989
MPCA, HAZARDOUS WASTE DIVISION

DATE: JUL 25 1989

SUBJECT: Review of Region 5 data for WCI FREEZER

FROM: Curtis Ross, Director Chuck Elby for
Region 5 Central Regional Laboratory

To: Data User:

Attached are the results for: Soil Samples

CRL Data Set Numbers: RCRA 6294 CASE 12095
Sample Numbers: 89KV01501-525 (20)
Parameter(s): VOLATILES
Laboratory: Gulf South Environmental Labs

Results Status:

(X) DATA ACCEPTABLE FOR USE* See Reviewer's Comments
( ) DATA QUALIFIED AS TO USE
( ) DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

If there are any questions regarding the data, refer them to David Payne, the Quality Control Coordinator, at 3-3805

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(5SCRL)

RECEIVED BY
S. Griffin
JUL 25 1989
U.S. EPA CENTRAL REGIONAL LAB

RECEIVED BY/DATE:

Comments:

Filed by/date: